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DIESEL RAILWAY TRACTION SUPPLEMENT

The February issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, will be ready on February* 1, *price* 1s.

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An index to the eighty-first volume of THE RAILWAY GAZETTE *covering the issues from July* 7 *to December* 29, 1944, *has been prepared, and is now available free of charge on application to the Publisher*

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to Fridays 9.30 *a.m. till* 4.45 *p.m.*

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Increased Credits for Exports

ON Friday last the President of the Board of Trade introduced in the House of Commons a Bill to assist the export trade of Great Britain. The limit of Government guarantees is to be increased from the pre-war figure of £75,000,000 to £200,000,000, under the Export Guarantees Bill, and certain restrictive conditions, which hampered the pre-war scheme of export credits, are to be abolished. The Bill provides power to give guarantees covering contracts for construction work abroad, by removing the restriction imposed by the Act of 1939 limiting the Board's guarantee respecting local expenditure on labour and materials to one-third of the value of goods exported under the contract. The B.O.T. is also empowered to guarantee sales of goods by British merchants for shipment directly between countries overseas, a provision which may be of value in respect of sales of unmanufactured goods and other primary products that do not compete with our export trade in manufactured goods. A proviso excludes manufactured goods, except where the guarantees can be given without detriment to our export trade. The liability of the Board of Trade in respect of the new guarantees is not to exceed £15,000,000. So far the Government export credit scheme has imposed no charge on the Exchequer, as the total of claims paid and the administrative expenses have been met from the premiums charged; it is not expected that the guarantees given under the new Act will impose any charge on the Exchequer.

British Trade with Egypt

The British Chamber of Commerce in Egypt has prepared a report on post-war trade, in which it points out that a prosperous Egypt will provide an excellent market for United Kingdom goods. The report recognises that it suffers from the handicap of ignorance as to the commercial and financial policies which will be adopted by the United Kingdom and her Allies, and also the extent to which the United Kingdom will be able and willing to supply Egypt when the competing demands for manufactured goods will be in excess of the supply capacity of many industries. It points out that some manufacturers and merchants in the United Kingdom have discontinued advertising, and many representatives in Egypt have supported this policy. This negative attitude has taken no account of the future, and with a long-term policy in view it is essential that British manufacturers should do their utmost to preserve and stimulate interest in the quality of their products. British engineering has had a substantial share in developments in Egypt, and the report considers that business possibilities should be promising. Industrial re-equipment and development, electrical production and development, and railway improvements, are a few of the potential post-war outlets for engineering services, plants and supplies. Competition is likely to be keen, particularly from United States and Switzerland.

British Investments in Latin-American Railways

The amount of British capital invested in Latin America at the end of 1944 was £954,233,109, and the interest received was £23,554,667, or 2·4 per cent., which is the same as for the previous year. Capital on which no interest was received totalled £415,666,843. Statistics compiled by *The South American Journal* show that this unfavourable showing was largely due to the fact that on £446,939,255 invested in railway undertakings, the interest received was only £5,188,848, or only 1·1 per cent., and £319,073,859 of capital, was unremunerated. The position is that the percentage of the total investment in Latin America in default is 42·5 per cent.; nearly 50 per cent. of the British capital concerned with Latin America is invested in railway enterprises, and in this group 71·4 per cent. of the capital received no return. The position of the investor in railways in these countries is particularly unfortunate, for he fares far worse than any of the other groups. For instance, the average return on Government bonds is 2·6 per cent.; on banks and shipping it is as high as 6 per cent. In the miscellaneous group it is 4·5 per cent. The average rate of return on Latin-American railway investments has been very low for many years. Since 1931, when it was 2·3 per cent., it has not exceeded 1·6 per cent. in any year.

Belfast Area Planning

Comprehensive planning proposals for the Belfast area are made in the Interim Report of the Planning Commission which was published on January 16. The members of the Commission, of which Mr. W. R. Davidge is Chairman, were appointed in their personal capacities as men of technical experience and ability. They were appointed on August 17, 1942, "to be a Commission to prepare planning proposals for submission to the

Ministry of Home Affairs (Government of Northern Ireland) and to make recommendations as to any legislative or administrative action necessary in connection therewith." The Commission has surveyed the whole of Northern Ireland, but has issued this Interim Report on the Belfast area as a matter of urgency. As with other planning proposals, it is recommended that areas of exceptionally high density of housing be thinned out. The principal transport recommendations are concerned with road construction and improvements, and the only recommendations concerning railways are with regard to the access to stations. The Report says that the greatest defects in the existing railway facilities are undoubtedly the distance of the L.M.S.R. (N.C.C.) station from the centre of the city; the unfortunate approach to the Belfast & County Down Railway station *via* coal-quays; and the lack of any forecourt to the Great Northern Railway station, which causes a great deal of traffic congestion in Great Victoria Street.

Improved Belfast Station Access

The road proposals of the Belfast Planning Commission have been designed to improve the situation outlined in the foregoing note. The scheme provides a direct approach from Albert Bridge *via* Franklin Street to the Great Northern station which fronts on to the inner ring road with its public services, and a square for parking and traffic circulation has been created opposite the station. The new Queen's Bridge proposals would similarly improve communications between the Belfast & County Down Railway station and the centre of the city, and the riverside improvements suggested elsewhere would further provide a dignified and convenient approach. As regards the L.M.S.R., whose station has been partly destroyed by enemy action, any large rebuilding scheme depends chiefly upon the arrangements made concerning road and rail transport in the future. The Commission has assumed that co-operation between the various interests will take the place of the uneconomic competition of the past and therefore recommends for consideration a combined railway and road transport terminal near Great Patrick Street at a point touching the proposed ring road which would connect it directly with the airport *via* the new bridge, and from which the Commission suggests it might be possible to link up with a new cross-channel steamer terminal.

Indian Post-War Planning

The Reconstruction Committee of the Viceroy's Council has now issued its second report on post-war planning. It envisages an all-India plan on broad lines for 15 years—except in certain subjects requiring a longer period—together with a detailed phased plan for the first five years, prepared jointly by the Central and Provincial Governments and by the Indian States. Among the long-term projects involving large-scale capital expenditure and of basic importance to development as a whole, is the development of electrical-power, primarily for industrial expansion, but also for agriculture, pump irrigation, and rural industry. It is suggested provisionally that plans should be based on the assumption that this capital expenditure on electrical development, and also on roads and irrigation, should be financed by loans, and in the case of industrial development by private capital, except where participation by the State is decided on. It is recognised that a good system of communications will be essential for the economic and social development of the country and the extension of road communications, therefore, will be pursued vigorously, so as to secure a uniform and co-ordinated road system over the whole country. A programme for the rehabilitation and reorganisation of railways has been drawn up and will be put into execution as early as practicable, the summary of the report mentions somewhat casually. It is significant that in it there is no mention of co-ordination between road and rail transport with a view to eliminating uneconomic competition and in the interests of the country as a whole.

A U.S.A. Railway Merger

The article on page 85 in this issue describing the wartime along the eastern seaboard of the United States is the offer which has been made by the Atlantic Coast Line Railroad to acquire 60 per cent. of the common stock of the Florida East Coast Railroad, on completion of the reorganisation of the latter. If the A.C.L., which by its control of the Louisville & Nashville, Nashville, Chattanooga & St. Louis, and other railways is already one of the largest and most influential companies in the U.S.A., should secure this controlling interest in the F.E.C., the range of the former's influence will be further increased. With its subsidiaries, the A.C.L. owns and works 11,672 miles of line; the F.E.C. has a total of 682 miles of line. Hitherto traffic has been exchanged between the two companies at Jacksonville, on the northern borders of Florida, where they have established joint freight terminals; and they maintain also a joint service between Florida and Havana, Cuba, by means of the Peninsular & Occidental Steamship Company. If the plan receives the approval of the Interstate Commerce Commission, the Atlantic Coast will possess a main line under single control between Richmond, Virginia, and Miami, Florida, 1,046 miles in length. The strongest competitor of the Atlantic Coast Line is the Seaboard Railway, with its own independent main line between Richmond and the east and west coasts of Florida, and for this and other reasons the Atlantic Coast proposal is not likely to go through without opposition.

Railway Survey in Mountainous Country

The article on page 85 in this issue describing the wartime methods of construction adopted in America for the realignment of an important line of railway is, in addition to its general interest, instructive in the notes it contains on the survey work involved. The railway engineers were fortunate in that no special aerial reconnaissance was necessary, and field reconnaissance was reduced to a minimum. In such thickly-wooded mountainous country, field reconnaissance is both slow and costly. This was due to the fact that the Tennessee Valley Authority and the U.S. Geological Survey had previously completed topographical maps of the whole area to a scale of 2,000 ft. to an inch and had also taken large numbers of aerial photographs. Where alternative alignments seemed feasible and worthy of closer examination, the parts of these maps that they traversed were enlarged to a scale of 500 ft. to the inch, thus enabling the various routes to be chosen for field reconnaissance with greater accuracy. A final general alignment was then able to be selected as a result of this reconnaissance work, and a narrow belt of country along it was plotted to a scale of 100 ft. to an inch and with 10-ft. contours after detail preliminary survey. On these large scale plans, a " paper " centre line, longitudinal and cross sections could be plotted with considerable accuracy, insuring the best possible alignment for the final location. It will be noted that as a result of this thorough survey, the cost of constructing and the recurring costs of working 8½ miles of line have been saved, without any steepening of the ruling grade or reduction in the traffic capacity of the railway, and with even less rise and fall.

The Engineer and the Nation's Money

The constantly increasing volume of production which machines have made possible as a result of engineering ingenuity, coupled with the universal desire for a higher standard of living and the maintenance of a high and stable level of employment, was the subject of an address by Mr. Antony Vickers, a director of the Hydraulic Coupling & Engineering Co. Ltd., to an informal meeting at the Institution of Mechanical Engineers on Friday last. He pointed out that hitherto an increasing volume of production had resulted in a declining level of prices, with the result that the producers had either to cut costs or restrict output. In effect the influence of the price level, when falling, was to cause a diminution of production, with consequential loss of employment and purchasing power; Mr. Vickers argued that an agreed price level should be stabilised and that the volume of money in circulation should keep pace with the steady increase in production made possible by the full use of modern machines. This, he suggested, should be done by the creation of new money against the wealth being created. The " injection " of this money would take the form of expenditure on higher pensions, better housing, improved education and so forth.

Phosphorus and Sulphur in Rail Steel

In the first two decades of the present century, phosphorus and sulphur were the *bêtes noires* of the British rail-user, and after the war of 1914-18 it was considered a great advance when the basic open-hearth steelmakers were able to offer rails in which sulphur was limited to a maximum of 0·05 per cent. and phosphorus to 0·04 per cent., so that the carbon content in the steel might safely be raised. The fact is, of course, that both phosphorus and sulphur are embrittling elements; at the same time, within limits, phosphorus adds toughness to the steel, and some authorities since have considered that by such drastic limitation, embodied in the British Standard rail specification of 1922, a valuable wearing element was being thrown away. When the L.N.E.R. first began to use the medium manganese rail, in 1931, maximum limits of sulphur and phosphorus were advanced to 0·06 per cent.—a relaxation subsequently included in the B.S. revised rail specification of 1935—and since then wartime conditions have compelled a further easing to 0·07 per cent., which brings us back roughly to the limits obtaining in the original B.S. rail specification of 1909. These changes do not appear to have brought about any untoward results, and it is

possible, indeed, that the higher limits may have contributed to the effect of the higher manganese in increasing rail wear capacity. An interesting enquiry for the metallurgists would be to discover the precise boundary line at which phosphorus and sulphur in rail steel change from an asset to a liability, or *vice versa*.

More American Pullman Ideas

Now that the American Pullman interests have decided to give up car operating rather than vehicle manufacturing, in accordance with the requirement of the Court, the Pullman-Standard Car Manufacturing Company is showing considerable enterprise and versatility in preparing designs of vehicles for post-war sale in competition with other manufacturers. Although this is an obvious commercial necessity, as the manufacturing company will no longer have an important purchaser under the same financial control, the American railway industry should benefit substantially from the practical nature of the new designs, which have the advantage of extensive operating as well as manufacturing experience. During the past few months we have already described two such novelties, namely, the Duplex Roomette sleeping car (June 30, 1944, issue, page 668) which combines passenger privacy with economy in the price of the accommodation, and the proposed three-deck coach for business travel which will seat 112 passengers (October 20, 1944, issue, page 378). This week we publish brief details of a further example of Pullman ingenuity, the " Day-Nite " design which is intended to give coach (equivalent to third class) passengers " chaise longue sleeping comfort " for long-distance travel.

Open Vestibuled Passenger Stock

Discussions now proceeding as to the future of British main-line passenger rolling stock arouse some interesting speculations as to the extent to which open centre-corridor vehicles will be built after the war. In the decade before the war the L.M.S.R. and the L.N.E.R. turned out large numbers of open-vestibule coaches for excursion purposes, and rolling stock demands during the war have resulted in the extensive use of this stock in long-distance passenger trains, many of which are now almost entirely centre-corridor formations. Similar stock was built on a smaller scale by the G.W.R. and S.R., and this, too, has found its way into general service. Although these vehicles have certain disadvantages, such as lack of privacy and a tendency to draughtiness, there is little doubt that they have proved popular. In crowded trains centre-corridor open cars, even when all seats are occupied, are considerably more spacious than full compartments, and there is not the same cramped sensation in one of the double seats on each side of the aisle that there is in a third class corridor compartment with four passengers on each side. In the first class open cars, with one double and one single seat abreast, it is impossible for the occupants to feel cramped, and in wartime conditions many first class passengers have shown a marked preference for this type of vehicle. Open stock is the standard practice in North America, and the presence of so many members of the United States and Canadian services in this country may also have some influence in popularising the open car. For long-distance night travel, also, the American reclining-chair car is worth consideration as an alternative to the third class sleeper, especially on trains whose journeys are made partly by day as well as by night.

High-Efficiency Australian Locomotives

The notable design of 4-8-4 locomotive designed by Mr. F. H. Harrison for the South Australian Railways, which is illustrated and described on p. 87, marks a big step forward in locomotive practice. Everything possible has been done to secure maximum power without infringing the prevailing weight restrictions, and the performance test, when a maximum of 2,600 h.p. was developed at 70 m.p.h. with a 500-ton train, show the measure of success achieved, despite the comparatively small volume of the cylinders, two in number, which have a diameter of 20½ in. and a 28-in. stroke. Another noteworthy fact is that, with the exception of the boiler plates, roller bearings, and exhaust injector, the locomotive is an all-Australian product, and as such is a remarkable tribute to the high degree of engineering development which has been achieved in the Dominion. For all its power and excellent performance, there is a note of simplicity about the design which is very evident from the arrangement of the footplate controls—usually a good guide to the complexity of a locomotive design—and in general one feels that here, at any rate, is an indication that Australian engineers are finding a way out of the situation summed up in the editorial note in our July 7 issue, in which reference was made to the growing deadweight caused by the multiplicity of gadgets now to be found on the modern locomotive, especially in America.

That Cheltenham "Race Train"

IF we attempted to deal with all the ill-informed and often ridiculous statements concerning railways that appear from time to time in the daily press, our readers would have reasonable grounds for complaint that we were wasting our paper ration by devoting space to these " stories " which is the modern and perhaps more accurate term for some newspaper reports.

A particularly flagrant case of exaggeration occurred in a number of morning, evening and Sunday papers during the past two weeks concerning the running of a train in two parts by the Great Western Railway on Saturday, January 6. In the ordinary way we should not have referred to this matter, but as it led to a question in Parliament, and is recorded in our regular feature " Questions in Parliament " on p. 96, we think it worth while. In our view the reply of the Parliamentary Secretary to the Ministry of War Transport might well convey the impression to officers of overseas railways that the Great Western Railway had committed a serious breach of the Minister's instructions that no special facilities are to be provided for passengers travelling to race meetings.

As we see it, it cannot fairly be contended that special facilities were provided in that that particular train has often been duplicated on Fridays and Saturdays as occasion demanded. The railway company had no jurisdiction over the holding of the race meeting at Cheltenham. The relief train was not advertised and was in fact only run to provide a service in the up direction similar to that which had to be provided on previous occasions when no race meeting was being held. To facilitate working the relief train ran non-stop to Cheltenham (Malvern Road) and then to the Racecourse Station, which is actually *en route* to the carriage sidings!

It is perhaps unfortunate that this convenience was afforded to a few race-going passengers, but this error of judgment in not appreciating that the Civil Service mind might regard an action to facilitate working and to convenience railway travellers as a special facility hardly appears to justify the severe stricture of the Ministry of War Transport.

Higher Appointments

IN September, 1938, the Ministry of Labour began to compile a Central Register of persons with high professional, technical, and business qualifications so that suitable candidates could be found readily for vacancies in Government departments. After the war broke out the Central Register was restricted to people with technical or scientific qualifications as engineers, chemists, physicists or quantity surveyors. A separate Appointments Register was opened for persons with administrative, executive and business experience. In March, 1942, the Ministry set up a new Appointments Department to handle the cases of " men and women qualified to undertake responsible work in the professions or elsewhere." The department took over the Central Register and the Appointments Register which remain the basis of the duties of two distinct branches. It is unfortunate that more descriptive titles have not been given to the two sides of the department's activities: the present names do not indicate how the work is organised, and this is explained in the next two paragraphs.

The Central Register is divided into five sections dealing with

1. physicists, mathematicians, and engineering scientists;
2. civil engineers, architects, surveyors, valuers, estate agents;
3. mechanical engineers;
4. electrical engineers; and
5. chemists, metallurgists, biologists, agriculturalists, and veterinary surgeons.

Each section is in charge of a technical officer, whose task during the war is mainly to transfer persons already employed in essential work to more important duties. The Restriction on Engagement Order, 1940, has compelled many outside employers to obtain certain grades of staff through the Central Register which will obviously have little difficulty in placing people during the emergency. On graduating, all students qualified in appropriate subjects are referred to this Register for placing. The Register has the aid of six advisory committees concerned with

1. architecture and public utilities;
2. chemistry;
3. civil engineering (Mr. R. Carpmael is a member);

4. electrical engineering;
5. mechanical engineering (Sir W. A. Stanier is Chairman);
6. scientific research.

The Appointments Register covers every other kind of employment above the level of clerk and foreman. The work is spread over a large London office and 30 provincial offices of varying size. For purposes of interviewing and finding posts for people this Register is divided into 14 occupational groups such as

(*a*) teachers, librarians, linguists;
(*b*) authors, artists, editorial and publicity staff, travel and tourist experts;
(*c*) accountants, average adjusters, bank officers;
(*d*) actuaries, statisticians, economists, welfare officers.

There is a "clearing system" for keeping the branch offices in touch with vacancies outside their areas and guidance is given from headquarters about post-war problems, administration of the "Further Education and Training Scheme," negotiations with employers on questions of training and other matters of general policy. The Appointments Register can avail itself of the advice of four committees composed of leading accountants, actuaries and statisticians, journalists and linguists respectively, but we do not know how many posts it has succeeded in filling satisfactorily.

The estimated cost of the Appointments Department as at present constituted is about £300,000, but the Minister of Labour & National Service considered that its organisation would have to be extended to cope with the problems which will arise immediately the war ends. In July, 1943, therefore, he appointed a strong committee, with the Rt. Hon. Lord Hankey as chairman, with the following terms of reference:—

"To consider and report upon the arrangements which should be made to facilitate the employment after the end of hostilities of men and women qualified to undertake responsible work in the professions or elsewhere, with particular reference to

(*a*) the organisation, premises and staff of the Appointments Department of the Ministry of Labour & National Service;

(*b*) the arrangements which should be made for co-operation between the Appointments Department and other organisations and institutions (including professional, industrial and commercial organisations) and universities, at home and abroad."

The report of the committee has now been presented to Parliament under the vague title of "Higher Appointments."* We hope that all large employers, including the railway companies, will study the recommendations in the report critically, because they involve the intrusion of the Ministry of Labour into matters which in normal times have been regarded as outside its province. The Minister has assured the Association of British Chambers of Commerce that it is not part of his plans to give the Appointments Department a legal monopoly of placing people, but that his object is to promote the most complete and friendly co-operation in this sphere between the State and industry and commerce. He stressed the importance of "a co-ordinated effort to ensure the best possible use of specialised knowledge and ability which constitute one of the nation's most valuable assets." Clearly, special machinery is required during the period of re-settlement after the war, but in an opening address to the committee the Minister left the members in no doubt that they were concerned with the setting up of a permanent service. It is odd that the remit does not say so explicitly and the committee took the prudent course of addressing themselves in the main to the problems of the resettlement period. Experience during the five years after the war should decide whether the life of the Appointments Department need be prolonged when conditions become normal.

The report accepts the general layout of the existing department, with its average register of 12,000, and recommends its extension to deal with an average of 30,000 cases. The number of regional offices is reduced to 12, but proposals are made for an improvement in status of a considerable number of the headquarter and regional staff. The principal suggestions are:—

(*a*) the officer in charge of the Department to be of rank at least equal to that of a principal assistant secretary (salary, £1,700 a year);
(*b*) technical advisers should be appointed at headquarters, ranking as assistant secretaries with salaries of £1,150 to £1,500 a year; these advisers would be men with high professional qualifications and wide contacts with universities, professional organisations, and employers;
(*c*) the officer in charge of the London office to be of the grade of regional controller (salary, £1,100 to £1,450 a year);
(*d*) the officers in charge of the regional offices to be raised above the grade of assistant regional controller (salary, £850 to £1,000 a year).

Other suggestions are that there should be a section in each appointments office for giving advice on careers and for dealing with education and training: there should also be a development section to bring the facilities offered by the department to the notice of employers and to find openings for persons who are difficult to place. Again, local representatives should be appointed at centres not served by a regional office: these would be men at small salaries and would act for the appointments offices. Finally, it is thought that one or more inspectors should be attached to Headquarters to keep the working of the regional offices under continuous survey.

On the assumption that there will be over any twelve months of the resettlement period an average register of between 20,000 and 40,000, the cost of the extended and reorganised Appointments Department may range from £900,000 to £1,000,000 a year—three times the cost of the existing establishment. On the score of expense alone, the working of the new arrangements should be watched closely. The report does not contain any figures to measure the work done during the 21 months since the department was constituted. It seems desirable that a yearly statement of its performance should be submitted to Parliament and published as a White Paper. The Appointments Boards of Oxford and Cambridge Universities were in the habit of publishing an annual analysis of the posts which they had been instrumental in filling and publicity about the operations of all such agencies would have many advantages. The committee devotes a useful chapter of its report to public relations and co-operation with other organisations: in another passage it suggests that broadsheets dealing with the employment situation might be circulated to all interested bodies. Evidently Lord Hankey and his colleagues appreciate that the success of the public service outlined in their report depends on its work being done most efficiently and so gaining the approval of a large number of employers.

After our study of the report we are left with the feeling that the Appointments Department may be of considerable help to the railway companies during the after-war years when many vacancies for technical staff may have to be filled. We cannot see much scope for using its registers as a means of recruiting traffic staff, though these records might produce from time to time lists of young men of good education who could be considered for special training. We intend to do our best to watch the development of the new arrangements closely once they are in full operation and hope in two or three years' time to be able to speak definitely about the merits of Government intervention in the settlement of appointments to responsible posts.

* Cmd. 6576. H.M. Stationery Office, price 1s.

Signalling and the Civil Engineer

A WELL-MERITED tribute to the efficiency and completeness of our British block-telegraph signalling and operating rules and the equipment used to give practical effect to them, by which the greater part of the heavy wartime traffic has been handled with commendable freedom from accident, was paid by the Signal & Telegraph Engineer of the Great Western Railway, Mr. F. H. D. Page, O.B.E., in his paper read before the Institution of Civil Engineers on January 16, brief reference to which was made last week. He is especially qualified to bear such testimony for, as he pointed out, his own railway is worked substantially throughout by these means and there is no doubt that, from the safety point of view at all events, it has no reason to be dissatisfied with the results. It is generally recognised among signal engineers that the post-war period is likely to bring opportunities for the application of what must admittedly be considered as more advanced methods, involving a wider use of power operation of points, light signals, and track circuiting, with perhaps some form of automatic train control or cab signalling over appreciable lengths of route, together with other refinements which may involve forms of wireless control and related devices.

Such a course certainly would tend to raise somewhat our already high standard of safety, but it would probably be justified only if it brought other advantages as well and put the railways in a position materially to improve themselves as transport undertakings and offer more attractive all-round facilities to the public. As Mr. Page emphasised, the technical aspect

of the latest signalling developments, using that term in the widest sense, is of absorbing interest. These developments indeed have reached such a high level of attainment that, assuming the step to be economically defensible, there is no reason why we should not see a practically perfect signalling system universally installed. Some time must elapse, however, before any very general change is seen in this country, and until it is our well-tried methods of operation, the result of many years' experience and thoughtful adaptation to all classes of traffic must continue to function. They have served us extremely well and it is appropriate at this time that the fact should have been stressed by an authority like Mr. Page.

The paper was not written to convey detailed technical information, but for the avowed purpose of giving civil engineers a general understanding of signalling on our railways today, with some indication of the trends now at work, and enabling those of them who are, or may be called, by reason of their administrative position, to bear the ultimate responsibility for the installation and maintenance of signalling equipment, to appreciate the fundamental principles involved. Originally, the work of the civil engineer was regarded as embracing the whole field of engineering as it affected civil as distinct from military life. There was then no electrical engineering at all, and even what is thought of now as mechanical engineering was hardly looked on as a distinct profession. On railways the locomotives and rolling stock, by necessity, soon became the province of a special engineer, but as a rule the civil engineer looked after everything else. The telegraphs, which came somewhat later, were the province of the electricians, as they were then called, and with them the civil engineer had little to do. It was only natural that such signals as there were in those days should be in his charge. especially as their most important early scientific application was at junctions, where points and crossings, his especial care, were involved.

The signal engineer, properly so called, arose in the first place from the ranks of the early specialist manufacturing firms, who had then greater opportunity for imparting a broad experience, on account of their activities covering so many different railways and the prominent part they took in the large amount of development work which went on continuously, as experience revealed difficulties and weakness and the rapidly expanding railway system presented increasing demands for improved apparatus. In time the railways saw themselves forced to have some staff of their own specialised in the maintenance of their signalling, even though the installing might still be done by outsiders, and eventually properly organised signal departments came into being. Generally, these formed part of the Civil Engineer's Department, but occasionally they were ruled over by the Chief Mechanical Engineer. Later still on one or two railways they attained the dignity of being independent of any other engineering authority.

We are not concerned here with the merits or otherwise of this or that system of organisation, a subject on which there is much to be said from more than one point of view. In any case, what is feasible and satisfactory on a railway in one country is not necessarily so on one in another or even the same country. Nothing, however, can alter the fact that signalling has now become so specialised that, on any railway comparable to one of our British main lines, there must be a signal engineer, whoever he may be formally subordinate to, possessing the requisite knowledge and experience to deal with the varied classes of apparatus—increasingly electrical, as the paper pointed out—called for by present-day conditions, and qualified to advise on the best course to follow in meeting the requirements of the traffic department and legislation. The civil engineer has primarily other things to attend to, but he and the signal engineer meet in the permanent way and have associations in other directions as well. Originally it was the working and locking of points that brought the two together. Since the introduction of the track circuit the civil engineer has seen his rails used as a part of the signalling system and insulated joints inserted in them and in the connections of points, the design of which he has had to approve from his point of view. He has been required by the signal engineer to provide first class ballast and drainage to facilitate reliable working.

The increasing application of electrical apparatus in signalling, especially in the field of telecommunications, destined to exercise, we think, much influence on railway operation in the coming years, is less directly a subject for the immediate attention of the civil engineer and involves technical details with which ordinarily he has been little accustomed to deal. Nevertheless, whether he assumes the final responsibility for all signalling or is the equal departmental colleague of a signal engineer who does so, he needs to have a sufficient general understanding of the whole field denoted by the term to-day and be in a position adequately to assess, with the aid of some specialist advice, the ability of any given item of equipment to meet a specified set of operating conditions. Specialisation is necessary on the railway, as in industry generally, because no man can study, much less be active in, more than a comparatively limited sphere of human endeavour, but railway working, and particularly so in the present day, needs above all to be treated in the light of a broad comprehensive outlook in which the various components, signalling included, are regarded to use Mr. Page's words, as "elements tending to produce a result," safe, speedy and cheap transport on a large scale. For such an outlook to prevail all classes of engineer on the railway must co-operate and have sympathetic understanding of the main features of each other's work. To foster this spirit between the civil and signal engineers was in effect the main purpose of his paper.

The Railway Fight Against Snow and Ice

ALTHOUGH the first winter of the war was stated to be the most severe within living memory, it has been matched in various respects, and in different parts of the country, by events of the present winter. As has already been stated, the London area has experienced its coldest spell for many years, and there have been severe frosts in the North. In the normal course, British railways are prepared for most eventualities and 417 snow ploughs are held in readiness at various strategic points to clear the lines immediately snow shows signs of lying or drifting. The L.M.S.R. and L.N.E.R., serving the north of England and Scotland, are naturally the most concerned. It may be recalled that, during the 1939-40 winter, on the L.N.E.R. alone, 390 miles of line were blocked, while signal boxes and lines, particularly in the north, were buried under drifts 15 ft. deep. Snow need not assume such substantial proportions, however, to cause considerable upset and delays. The mere act of snow falling often reduces the visibility of the driver and fireman of a train almost to nil. Melting snow or slush can clog up points so that they do not close properly, and signal wires may be so weighted down with snow as to cause a signal to give a false aspect.

Ice provides its separate problems. It locks points, freezes water supplies, renders useless the 141 track water troughs on British railways through which locomotives pick up water when travelling at speed, freezes brake rods and coupling chains, and interferes with the heating pipes of carriages. To combat this, gangs must be available to chip the ice away, and to maintain braziers (many burning sawdust) where hydraulic machinery is working. The problem on the 2,387 miles of electrified track of the main-line companies and the 174 miles comprising the London underground network is even more severe. If the conductor rail has a film of ice over it, the current-collector shoe is unable to function and the train comes to a stand. Many experiments have been tried, but perfection has not yet been reached in methods of keeping the conductor rail permanently free of ice. Probably the best protection against icing is to keep trains constantly running so that the ice does not form, but this is not always practicable in the slack period during the night. London Transport has a fleet of "sleet" locomotives to keep conductor rails clear. These are fitted with pneumatically-operated wire brushes carried on the collector shoe; they have roller ice crushers and can also eject on to the live rail a stream of de-icing fluid to prevent the ice re-forming after the locomotive has once cleared it away.

No fewer than 1,376 sets of points operating in the London area are provided with direct or indirect heating equipment, some of them thermostatically controlled to switch on heat when the temperature falls to within 3 degrees of freezing point. Such elaborate equipment, however, is not practicable on the longer stretches of electrified track owned by the main-line railways. All companies, though, have devices whereby de-icing fluid or a jet of oil is fed direct to the conductor rail, and mechanical ice scrapers, controlled by the motorman keep the rail clear of ice and snow, but points and junctions have to be kept clear largely by use of rail scrapers, salt, or portable de-icing apparatus. The Great Western Railway has adopted with success a steam lance which consists of two or more 20-ft. lengths of armoured hose attached to the steam cock of an engine.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

"The Un-Beaten Track"

Pinner,
Middlesex. January 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—What's in a name? To the permanent way engineer "The Un-Beaten Track," of which you gave so eulogistic a review in your January 5 issue, conveys the irresistible impression of a stretch of line sadly deficient in proper maintenance. Can it be that the Great Western Railway knows nothing of "measured shovel packing"? If so, the feats set for in this book deserve even more eulogistic comment!

Yours faithfully,
VERITAS

A First-Class Grievance

Berne, Switzerland
January 12

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In connection with the recent references in your columns to "The Plaint of the First-Class Traveller in Great Britain," you may be interested to learn that, as from September 15, 1944, differences in fares accruing from the fact that travellers on the German Reichsbahn have been forced to travel in a lower class than that to which they were entitled by their tickets will not be refunded if such differences are below 20 Reichsmark in the case of first or second class fares, and below 10 Reichsmark in the case of third class fares. This provision is intended to simplify the administrative business of the Reichsbahn. It applies only to the home traffic, and no change has been introduced so far as international tickets are concerned.

Yours faithfully,
A CORRESPONDENT IN SWITZERLAND

Unknown People and Their Parliament

Thaxted. January 16

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—My article in your issue of January 5 was, in substance, directed to the question whether Parliament any longer attempts to safeguard the rights and liberties of the British people against abuse by those who govern them. For that is the function of Parliament; there is no other justification for its existence. However, as "Historicus" is concerned with railway history I will confine my reply to that side of it.

What I found disturbing was the conjunction of three things: (1) The railways in peace and war are possibly the most essential of our industries; at any rate the other great industries could not function without them. (2) The railways were at the peak of their efficiency just before the war. (3) Uncertainty regarding the treatment likely to be accorded to this essential and highly efficient industry was so general that powerful interests declined to invest in it, and even those less important people who invested did so for the most part only in very limited amounts. To me, at any rate, these things, considered together, suggest that there is something fundamentally wrong with our national standard of values. I will leave it at that.

On his second point, "Historicus" is difficult to follow. He objects to my statement that "the proprietors of the railways owe to Parliament nothing whatever," and, by way of showing that I am wrong, he refers to "statutory powers and protection." It is not quite clear to me what is implied here. Obviously, the new form of transport could not function unless it was permitted to do something, and it was inevitable that the Government of the day should lay down what it might do and might not do. Clearly also, the investor of that time found the needed capital, or withheld it, in proportion as he deemed the powers granted to a company attractive or otherwise. It was purely a business arrangement, the one party granting certain rights and the other financing the project. At the end of the transaction neither party was indebted to the other. He tells us that: "In return for the practical monopoly of long-distance transport which they enjoyed, the companies were naturally subjected to obligations." But, as an historian, he should have completed the story. Had he done so no doubt he would have continued: "and when in the course of time competitors appeared and their monopoly ceased to exist, these obligations were, quite properly, maintained as before."

The grievance of the stockholder dates from the 1921 Act, which threatened him with the loss of his revenues above a certain amount and, in return, afforded safeguards, which, as soon as they were tested, broke down. "Historicus" does not accept this estimate of the Act and attaches importance to the "extension road powers," by which he means, I presume, the right conferred on the railways to compete with their own services, or to invest in companies of which the incomes, for the greater part, are provided at the expenses of railway traffics. He refers, also appreciatively, to the "introduction of the licensing system for road vehicles." But here, surely, he is treating as a virtue what was merely a necessity. In any case since the railways were left to work under restrictions that were not applied to the road operator, my indebtedness under this head is, I imagine, more fanciful than real.

All this is made to lead up to the question: "How then, can Mr. Brown" (since "Historicus" is unwilling to give any portion of his own name I cannot complain that he withholds a part of mine) "justify his statement that . . . Parliament ignored the disabilities it had imposed on the railways"? The only justification I can think of, off-hand, is that the disabilities are still there, or were when the war broke out.

I will not follow "Historicus" into the unknown future, but I may remark that it would take something more than his important nom-de-plume to induce me to accept him either as a sound historian or a reliable prophet.

I am, yours truly,
ASHLEY BROWN

Belgian Railways Under the Germans

14 Field Svy. Coy.,
R.E., B.L.A.
January 15

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The last timetable of the Belgian Railways issued under German management was published on July 3, 1944. It was printed in German, Flemish, and French, and has 114 pages. A rather curious thing is that some of the trains shows in a list of departures from the principal Belgian stations are not given in the relevant timetables. Five trains are shown as having restaurant cars. The electric service between Brussels and Antwerp had 29 slow, 26 medium fast, and 27 fast trains in each direction, plus 6 running on some days only. To Antwerp the timing was 37 min. (for the fast trains) including a 2 min. stop at Malines. In the reverse direction the time was 35 min. for the 44 km. Only one steam service was advertised and that was the Paris—Brussels—Antwerp and Amsterdam train taking 59 min. There were three Brussels—Paris trains, leaving Brussels (Nord) at 7.35, 13.08, and 23.03. Three non-stop runs to Ghent (St.-P) did 58 km. in 54 min. A daily service to Luxembourg took 5 hr. 48 min. for the 220 km. There was also a train to Nancy, *via* Namur and Dinant. A train was shown from Lille to Tournai, Brussels, and Cologne; and another, leaving Brussels at 7.31, was the Berlin train, *via* Liége, Aachen, and Cologne, but times were given only as far as the frontier.

Yours truly,
H. GODWIN

Publications Received

By My Fay. By Sir Sam Fay. Knapp, Drewett & Sons Ltd., London. 7 in. × 5 in. 43 pp. Price 10s.—This little book reflects much of the characteristic vigour for which Sir Sam Fay was known for so many years to a wide circle of railway people in this country and abroad. As was recorded in our December 29 issue, Sir Sam attained his 88th birthday on December 30 last, but that advancing years have not dimmed his forceful personality is apparent from his writing. The book is addressed as a greeting to his old railway colleagues, and many who knew him in his heyday as General Manager of the Great Central Railway Company, a position he held from 1902-22, will find much in it that bears his unmistakable stamp. The narrative makes no attempt at continuity, but is rather a collection of verses and essays; one of the latter is a satirical prod at present-day planning and the vogue in some quarters for nationalisation.

Stainless Steel and Heat-Resisting Steels.—We have received two publications from the United Steel Companies Limited dealing with Silver Fox stainless-steels and Red Fox heat-resisting steels. Both publications contain fourteen pages and are well produced. The stainless-steel publication has been revised and represents a new edition of the standard catalogue produced some time ago; it contains a number of tables which will guide users of stainless-steel and iron in the selection of a suitable quality of material to meet specific requirements, and in the correct methods of treatment and manipulation of the material. The heat-resisting publication is new and contains the latest results of experimental work on these materials; this publication also contains a number of tables which will guide users of heat-resisting steels in the selection of suitable steels to meet their specific requirements, and also in the correct method of treatment and manipulation.

The Scrap Heap

In the course of an average winter, fogmen on British railways place 2,174,000 fog signals or detonators on the line.

* * *

During the 1944 season the Southern Railway conveyed 150,000 packages of tomatoes from the Isle of Wight, in addition to 4,000 packages of potatoes and 1,360 of onions.

* * *

EDINBURGH TO CLYDEBANK

Before the war my idea of happiness was a long journey on the Highland Railway—any part—in a first class carriage—alone. It was more than happiness: it was my peculiar paradise, a paradise of comfortable navy blue coloured upholstery tricked out with little lace mats on which to recline an entirely satisfied head.

Before the war—the glory is departed—that Elysium is in the eternity of the past which returneth not.

Today I have had two journeys; Edinburgh to Glasgow—Glasgow to Clydebank—and the carriages—they depressed, disillusioned, disgusted me—they make me despair.

Edinburgh to Glasgow was bad, perhaps worse than I saw, because the carriage was full, but it had visible two panels of back upholstery cut and torn. Glasgow to Clydebank had all the electric globes broken at their sockets: the seats were ripped and ragged. The windows—two of them—out altogether, the window straps were gone, the racks stringless.

Slightly disfigured, the notices about "careless talk" glared at me. They had been obeyed—implicitly. There had been no careless talk in this carriage. There had been no idle hands, if idle tongues had been silent. I see the calm, relentless determination to destroy, to destroy purposely but finally, utterly. It is significant. They were makers of the engines of destruction, those who had preceded me as passengers from Glasgow to Clydebank. They were the forerunners. They were the pioneers. They were breakers down of privilege.

They were breakers-up of a civilisation which was dear to me, the comfort of a first class carriage.—*From "Kings Cross to Waverley" by "Timoleon," published by William Hodge & Co. Ltd.*

Most people have little idea of what they are paying in indirect taxation, but, in fact, it amounts to the staggering sum of £1,000,000,000, or approximately 10s. a week for each man, woman, and child in the country.—*Captain L. D. Gammans, M.P., in "The Evening News."*

* * *

The movement for planning owes its present strength largely to the fact that, while planning is in the main still an ambition, it unites almost all the single-minded idealists, all the men and women who have devoted their lives to a single task.—*From "The Road to Serfdom," by F. A. Hayek.*

* * *

Doors on London underground railway carriages which close and open automatically are worked by compressed air. This compressed air, as it contains moisture, is liable to freeze in severe weather. To overcome this, methylated spirit vapour is fed into the compressed air stream to reduce the freezing point of the moisture content in the compressed air.

* * *

C.N.R. STORES CARGO SHIPS

In addition to building cargo vessels and minesweepers at its shipyard on the Pacific Coast, the Canadian National Railways has equipped every cargo vessel built in Canada during the past three years with sea stores. More than 1,000 items valued at $10,000, listed on 27 sheets, constitute an order for each ship. Supplies are based on a crew of 65 for a voyage of five months. Besides Vancouver, B.C., the Canadian National Railways also store ships at Montreal, Picton, Nova Scotia, and Saint John (New Brunswick).

* * *

100 YEARS AGO

[*From* THE RAILWAY TIMES, *Jan.* 25, 1845]

THE MORNING AFTER

The morning after the election it is apparent that the Democrats know that they have been in a fight. While their majority in the Electoral College is overwhelming, they know that many millions of Americans do not agree with them.

The people, on the whole, who do not agree with them, are those who understand the private enterprise system, whether as large or small employers, or employees making headway in large corporations or close to employers in small businesses, and many farmers; also people of the older American tradition who are suspicious of the influence of Marxists. That group of Americans, known as Republicans, have backbones and are the civilian backbone of the country.

Roosevelt swept the big cities where most of the people never dream of being in business for themselves; most of whom do not understand business as a man understands it who, out of savings, starts a small enterprise and makes it grow. They only think of jobs, and Roosevelt meant jobs to them, even if their sons had to pay for the jobs in battle. . . .

Young women in business largely voted for Roosevelt because they know their bosses, and Dewey seemed to be the apotheosis of all the cold impersonal executives they ever knew. They instinctively rebelled against him, and they had great influence after working hours. Many young people besides were for Franklin D. Roosevelt on the basis of his experience in foreign affairs; they have a dream of one world and he expressed it.—*From "The Argonaut," San Francisco.*

* * *

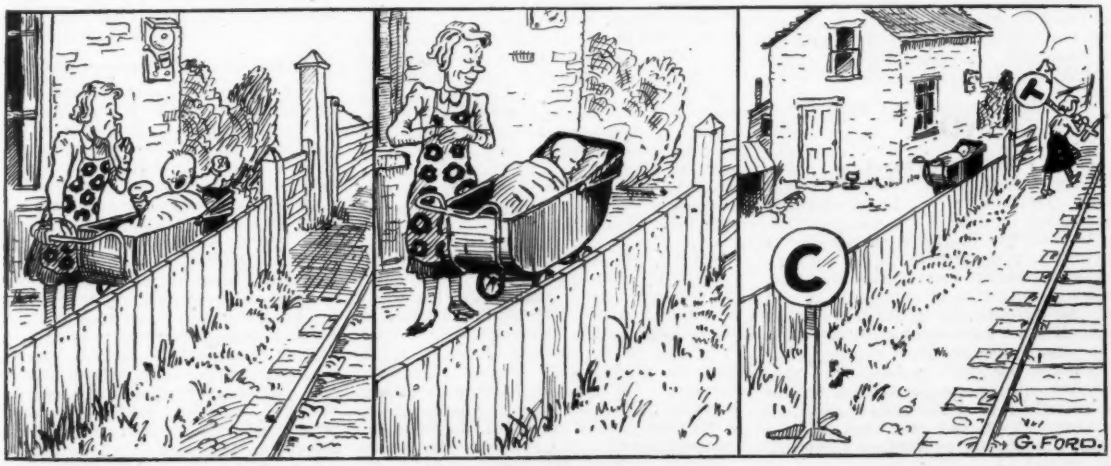
AN A.T.S. BEND

Intending joining a train, two A.T.S. girls showed their furlough tickets at the ticket barrier.

"Here," said the ticket collector, "these tickets are Euston to Glasgow; you're miles off the direct route at this station. There'll be excess to pay."

"We've called on friends on our way," explained one of them indignantly. "It's in order to break our journey, surely!"

"Yes, but you're not breaking your journey," said the ticket collector, reaching for his excess book, "you're bending it."



Caution

Rule 218 (e): The precise position of the work or place for which the warning board is intended will be marked by an illuminated indicator showing the letter "C"

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW SOUTH WALES

Passenger Travel

Restricted coal supplies made necessary further curtailment in passenger train services during the financial year ended June 30, 1944. How very substantial the reductions in services have been can be gauged from the following table showing the numbers of main and branch line passenger trains run during the past three years :—

Year	No. of main-line mail and passenger trains	No. of branch-line passenger and mixed trains	Totals
1941-1942 ...	41,895	37,164	79,059
1942-1943 ...	36,674	28,686	65,360
1943-1944 ...	33,766	26,852	60,618

Actually, the decrease of 18,441 trains represents 23 per cent., or approximately that one train in every four has been eliminated. In the same period of two years, passenger journeys increased from 218,846,454 to 250,565,758, an increase of 31,719,304, or 14 per cent. Naturally, the reduction in train services and the increase in passenger journeys accentuated the congested conditions. The plight of the ordinary civilian passenger was even worse than the foregoing figures indicate, inasmuch as the figures in the table included special military trains as follow :—

Year	No. of military special trains conveying personnel
1941-42	2,229
1942-43	3,568
1943-44	3,743

If these military trains are excluded from consideration, the reduction in ordinary civilian trains was 19,955, or 26 per cent., and the resultant overcrowding and overloading of scheduled trains adversely affected railway operating efficiency in the following ways :—

(*a*) Punctuality was affected by the necessity for giving preference to military trains over ordinary mail and passenger trains.
(*b*) Longer trains necessitated two stops where platforms were not of sufficient length.
(*c*) Delays occurred because the time allowances at refreshment rooms were exceeded in view of the heavy passenger business.
(*d*) Time was lost in handling the exceptionally heavy brake-van traffic.

Every effort was made to increase refreshment room facilities and to lengthen platforms, but difficulties in respect of materials and manpower militated against rapid completion of works programmes.

INDIA

Passenger Travel

Sir Edward Benthall (War Transport Member, Government of India) presided over a recent meeting of the Central Advisory Council for Railways, at which the proposal was approved that, after the war, there should be only three classes of railway accommodation, instead of four as at present. Air-conditioning would be provided on long-distance and inter-provincial trains.

The council also discussed overcrowding. Sir Edward Benthall pointed out that 20,000,000 more passengers a month now were travelling by train than during the first half of 1942, and that that increase was due only partly to military travellers.

Strike on B.B.C.I.R.

Nearly 5,000 employees of the Bombay, Baroda & Central India Railway struck work on December 2 last. No notice had been received by the administration, nor any formulation of the men's grievances.

Mr. S. C. Joshi, President of the All-India Railwaymen's Federation, stated that the Railway Court of Inquiry had recommended the fixing of the dearness allowance on a sliding scale, according to which the present rate should be Rs. 45 a month. The Railway Board had refused to give effect to that recommendation, and had introduced the zonal system, fixing different rates for different areas. That refusal was the source of the present discontent.

The strike ended on December 10, after an appeal by Mr. Joshi.

General Manager's Statement

Dr. H. J. Nichols, General Manager of the B.B.C.I.R., later said that the Railway Board regretted its inability to increase the dearness allowance or to make revisions in the scales of pay at the present time, but that the railway's general staff committee had put forward the following main suggestions for improvement in service conditions :—

(1) That the minimum dearness allowance in areas classed "X" should be Rs. 30 a month with effect from July 1, 1944.

(2) That the revised scales of pay introduced since 1931 should be abolished.

(3) That a cash bonus of two months' pay a year or 25 per cent. increase in the basic pay should be given to all until normal conditions were restored.

(4) That all the necessities of life should be stocked in all the railway grainshops at cheaper rates, and should be of better quality, cleaned and made available at all times.

UNITED STATES

C.T.C. Installations

The New York, Chicago & St. Louis Railroad is installing centralised traffic control between Thornton Junction and North East, Pennsylvania, over a length of 31½ miles of single track. Colour-light signals, electric switch machines and locks, and other material, are being supplied by the Union Switch & Signal Company. The control machine will be located at Conneaut.

The same contractor is supplying material to the Wabash Railroad for the installation of c.t.c. between the east yard at Lafayette and Delphi, Indiana. At Lafayette, 3¼ miles of double track, automatically block-signalled, separates the new c.t.c. length from 93 miles of single line already c.t.c.-controlled between Lafayette Junction and State Line, Indiana ; control of the new length is to be added to the existing control machine at Peru, Indiana.

C.T.C. on Jointly-Operated Line

An important railway link in the state of Missouri, over which traffic has been considerably speeded up by the installation of centralised traffic control, is the 47-mile St. Louis-South Western Railway track between Illmo and Dexter Junction, Missouri. The heavy traffic over this route is partly that of the owning company, and partly the freight traffic of the Missouri Pacific Railroad, which avoids the heavy grades of its own direct line from St. Louis to Poplar Bluff (used by the passenger services) by an alternative route down the Mississippi valley from St. Louis to Thebes, Illinois, 135 miles ; here the river is crossed by a bridge jointly owned by the St. Louis-South Western and the Missouri Pacific, as is also the 3 miles of double line from the bridge to Illmo, where the new c.t.c.-controlled line of the South Western is joined. Missouri Pacific trains rejoin their own system by a 25-mile spur from Dexter Junction to Poplar Bluff.

The Illmo-Dexter Junction section has 7 miles of double track at the Illmo end, and 7½ miles at the Dexter Junction end, with 31½ miles of single track between, equipped with five passing loops, each from 1½ to 2½ miles long ; the control machine is located at Illmo. On the average, 27 trains are operated in each direction daily over the single line, but the number rises at busy times to 60 or even 65 in the 24 hr. The installation of c.t.c. has reduced the average journey-time of southbound trains by 37 min., and of northbound by 35 min., and the run of 47 miles between Illmo and Dexter Junction is being made, in numerous cases, in 75 to 95 min., even including a stop for water at Delta or Avert. The installation is of particular importance to the Missouri Pacific, as it forms a link in the record length of c.t.c. which the latter has installed over most of its main line between St. Louis and Texarcana, as described in previous issues.

SWITZERLAND

Zürich Oberland Local Lines

The district to the south-east of Zürich known as the Zürich Oberland consists chiefly of a hilly region between the lake and the Glatt valley, along both of which run lines of the Federal Railways from Zürich to Rapperswil, with good local services. Cross-country routes connecting these two consist of three local lines : (1) Uerikon-Bauma, about 16 miles, opened 1901, standard gauge, steam ; (2) Wetzikon-Meilen, about 13 miles, opened 1903, metre gauge, electric ; (3) Uster-Oetwil, about 6½ miles, opened 1909, metre gauge, electric.

These undertakings are facing severe road competition, as both track and rolling stock require complete renewal. A commission of representatives of the railways concerned, the Federal Railways, the Federal Traffic Department and of local bodies was appointed lately by the Zürich cantonal authorities to report on the reconstruction of the lines or the substitution of some other means of transport.

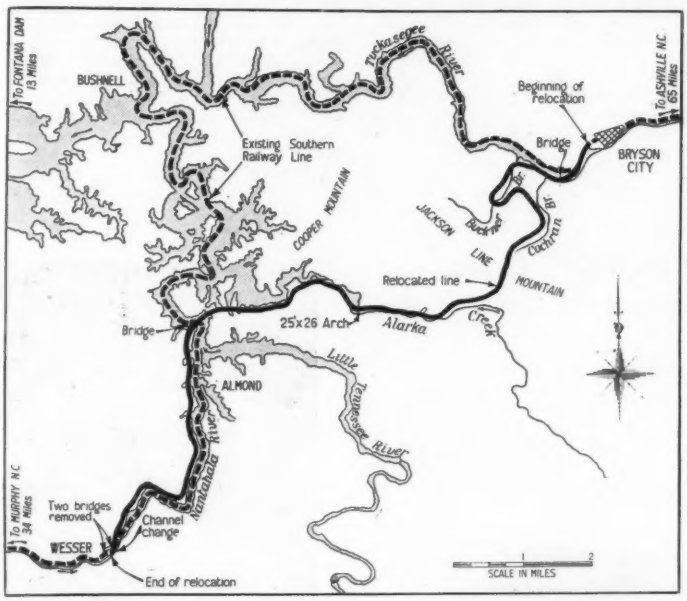
Commission's Recommendations

The conclusions reached were that, with the exception of the Hinwil-Bauma standard-gauge section, which is in fairly good condition and could be worked in conjunction with the Federal Railways, none of the lines concerned could be rehabilitated properly without entire reconstruction on their own right of way (both meter-gauge lines run at present by the roadside and through villages). The high cost is stated to put this quite out of the question ; and, of the possible solutions of trolleybus or bus services, the latter is recommended on account of its greater elasticity and the fact that all types of goods must be carried. It is proposed to use tractors by which detachable passenger or goods trailers can be hauled as required. A tractor, with appropriate passenger and freight trailers, ordered in 1942, was tried out before the commission in September, 1943, and found to fulfil all requirements. New routes would be served in some instances, with more frequent trips.

Modern U.S. Railway Survey and Construction

An interesting example of modern hill survey and vastly improved alignment and unusual construction works

IN somewhat similar circumstances to those entailed by the construction of the Shasta dam, described and illustrated in our issue of February 6, 1942, a 24-mile length of the Murphy line of the Southern Railway, U.S.A., is now being replaced by a 15¼-mile chord line, so as to avoid inundation by the Fontana Reservoir at present being constructed on the Little Tennessee River in North Carolina.



Sketch plan showing general alignments of new and old routes

On the accompanying map, the existing railway is shown as a dotted line running from Bryson City down the valley of the Tuckasegee River to its junction with the Little Tennessee at Bushnell, and thence up the valleys of the latter river and of the Nantahala to Wesser; the whole of these valleys will be converted into part of a reservoir by the damming of the combined river at Fontana 13 miles below Bushnell under the Fontana Dam scheme of the Tennessee Valley Authority. The realigned railway, or chord line, is shown as a full black line, cutting across the Jackson Line Mountain ridge from Bryson to the confluence of the Little Tennessee and Nantahala rivers, and thence as a high-level line along the western slopes of the Nantahala valley to Wesser.

The new line is being built through difficult mountainous country, which even in normal times would entail heavy engineering works. Now, however, there is the added necessity for saving every ton of steel, accomplished only by the construction of great embankments, several of them over 100 ft. in height and having to be specially built to withstand varying depths of water against them when the reservoir is functioning. Where bridges are unavoidable, second-hand spans are being used.

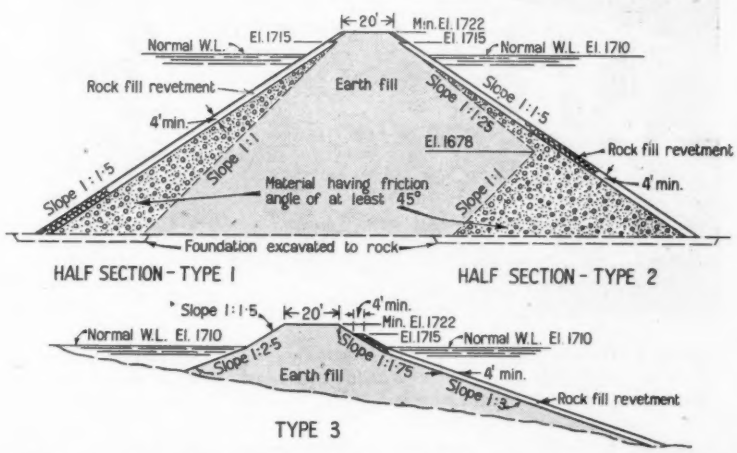
Bryson and Wesser are at roughly equal altitudes, namely 1,730 and 1,722 ft. above sea level, but whereas the existing line falls to 1,474 ft. at Bushnell, the new cut-off rises from Bryson City for about four miles, mostly at 1 in 77, so as to cross the ridge, and then falls at 1 in 111 for about four miles to the junction of the Little Tennessee and Nantahala; the remaining five miles to Wesser are generally level. These gradients, which are compensated for curvature, enable loads equal to those on the existing line to be hauled in each direction; the heaviest loading is eastward, from Wesser to Bryson City. The sharpest curves used are: one 14-deg. (6-ch. rad.), two 12-deg. (7½-ch.), and six 10-deg. (9-ch.).

So much for the general outline of project recently undertaken, which, however, was only made possible after careful survey. This was based in the first place on aerial photographs and maps with 40-ft. contours to the scale of 2,000 ft. to an inch. These enabled the most feasible general alignment to be selected without recourse to more than a minimum of field reconnaissance, which, due to the dense forest and undergrowth and the mountainous terrain, was necessarily slow and costly. Where alternative alignments seemed possible the contoured maps were enlarged to 500 ft. to an inch.

The general route having thus been selected, a preliminary survey to show the topography in detail was carried out and plotted to a scale of 100 ft. to an inch with 10-ft. contours, enabling an exact line to be finally located. It is noticeable from the accompanying map that, in order to secure a ruling gradient of 1 in 77 from the ridge down to Bryson City, considerable development of length in the Buckner Brook valley was necessary. The western descent from the ridge was able to be made fairly directly by following, more or less closely, the Alarka Creek. It will be seen that about two-thirds of the re-alignment are out of the main valleys which will form arms of the reservoir when the dam is completed. Up the Nantahala valley the new line is kept well above maximum water level for inundation.

There are only two major bridges on the re-alignment, necessitated by the crossings of the Tuckasegee and Little Tennessee rivers; the Alarka creek is crossed by a great embankment with a 25-ft. reinforced concrete arch culvert, 172 ft. long, as an opening for the stream. A diversion of the Nantahala River near Wesser avoided new bridging there, and made the replacement of two bridges on the old line unnecessary; some 600 ft. of deck girders were thus freed for use elsewhere.

After careful analyses of samples of the soil—which had a uniformly very low coefficient of friction and value of cohesion—it was decided to construct the embankments subject to submergence to three main types, of which sections are illustrated. The choice between types 1 or 2 and 3 depended upon the availability of rock and stability of the earth slope prior to rock protection. Types 1 and 2 were used where a maximum side slope of 1½ to 1 was necessary or where these types were more suitable than type 3, with its flatter slopes and use of less



Three types of embankment in cross section designed to withstand wave action due to inundation to within a few feet of formation level

rock. Type 3 could not be used on side-long ground that was at all steeply sloped. The specification for the "rock fill revetment" sheathing stipulated hard, sound, and durable rock, the outer 2 ft. of which was to be 70 per cent. composed of 1-cu. ft. rocks or larger, and sufficient small stone to choke the voids in the larger rock adjacent to the earth fill. Experience at other reservoirs has shown this protection to be adequate against wave action and erosion, and more economical than hand-placed rip-rap where rock is plentiful and handy. The earth filling had to be laid in 6-in. layers and consolidated with sheepsfoot rollers and truck traffic. For fills outside the inundation areas, 12-in. layers were permitted, but end and side dumping to form embankments were prohibited.

The numerous ravines crossed necessitated extensive use of pipe culverts. Altogether, some 9,100 r. ft. of r.c. pipes were used, these varying in dia. from 2 ft. to 6 ft., and often being laid in pairs. One 16-ft. and three 10-ft. r.c. arch culverts were also constructed under high embankments where large openings were obligatory. The flooring of one of the 10-ft. arches is no less than 120 ft. below formation level. There are also seven r.c. box culverts of different sizes in low bank.

The Tuckasegee River bridge consists of a central 169-ft. through truss span, flanked by two 63-ft. deck plate-girder spans on each side; its total length is 426 ft. The highest piers are about 45 ft. high and, like the others, are founded on rock; the concrete abutments are on H-piles. The Little Tennessee bridge is 776 ft. in length and consists of four 157-ft. through truss spans and two 67-ft. deck-girder spans. Here the maximum height of pier is 160 ft.

One of the most difficult problems of the construction was the fact that about a mile of the new line had to be benched out of the steep hillside in the Nantahala gorge above the existing railway, which had to be kept open to traffic. By exercising great care this part of the work was completed without delay to trains.

To give some idea of the work involved on this 15-mile construction, the quantities given below may be noted:—

Unclassified excavation ...	2,750,000 cu. yd.
Earth borrow ,, ...	350,000 cu. yd.
Rock ,, ,, ...	100,000 cu. yd.
Concrete in arch and box culverts	189,000 cu. ft.
Concrete in bridges ...	151,000 cu. ft.

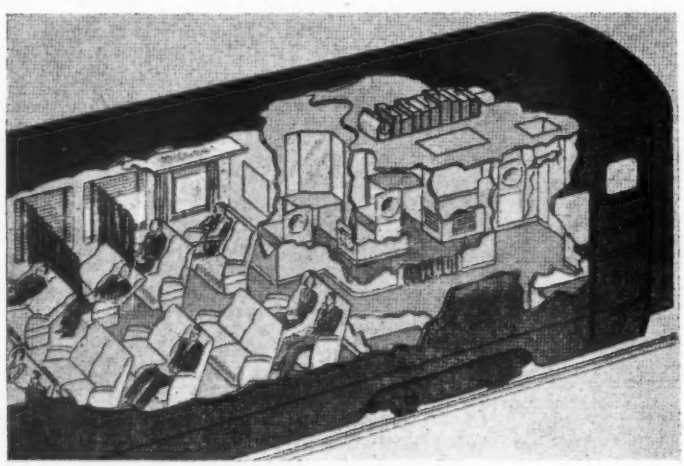
Serious construction started in March, 1943, and was expected to be completed by December 31 of that year. Though Mr. C. H. Pozer is Resident Engineer on the job for the Southern Railway, the work has been carried out by the Tennessee Valley Authority under the general supervision of Mr. C. E. Blee, its Chief Engineer, according to our American contemporary *Engineering News-Record*.

Pullman-Standard New "Day-Nite" Coach

Amenities of projected third-class carriage design for long-distance travel

A LONG-DISTANCE railway car that will give overnight third-class travellers "chaise-longue sleeping comfort" has been designed by the Pullman-Standard Car Manufacturing Company of the United States for construction as soon as wartime restrictions are removed. The carriage embodies improvements in luggage handling, washroom facilities, and controlled lighting that will give the passenger many of the comforts and conveniences of first class travel. Seats will have an extra degree of recline that will enable travellers to assume a comfortable sleeping position. At night the passenger obtains a full-length sleeping surface by pulling down from the back of the seat ahead a large upholstered leg rest.

Two important improvements for sleeping comfort are incorporated in the new seats. They are farther apart, giving each passenger an opportunity to stretch with his feet and legs fully supported at seat level instead of sleeping in a cramped position. The leg support takes the pressure off the back of the knee and thus eliminates the swollen ankles from which some suffer when they sleep with their feet on the present low foot rest.



Cutaway drawing showing three rest rooms with their curtained antechamber. Luggage is stored overhead and removed from the coach through a chute without interfering with disembarking passengers

Window curtains in the coach do double duty by being converted at night into curtains separating each pair of seats. They are hung on hinged rods, and are swung out at right angles to the wall and fixed to the back of the seat, giving each passenger a semi-private compartment.

Utilising the latest advances in illumination, the designers have provided individual spot-type lights for each seat in addition to the general illumination. These fixtures throw a cone of light about 30 in. in diameter at the reading level. They are individually controlled and focused, so that the light from one seat will not disturb the passenger in the adjacent seat, if he wishes to sleep.

Separating curtains are window draperies, during the day. Leg rest swings out of seat in front

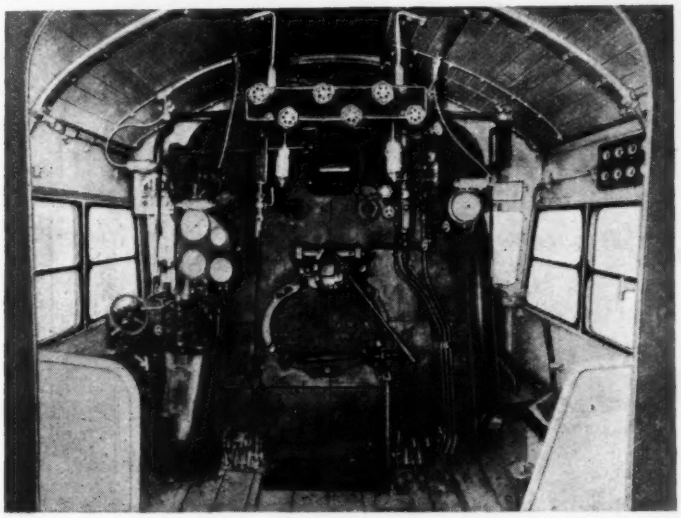
Instead of a common washroom at each end of the coach, the new car has three private dressing rooms for women and three for men. Each is a self-contained unit with complete washing, dressing and toilet facilities, including large mirrors. Each group of three dressing rooms has a curtained foyer into which passengers may step to wait for one of the rooms to be vacated.

This new treatment not only will speed up personal preparations in the morning and evening, but it will also relieve the traveller of the embarrassment of waiting conspicuously in the aisle. The car will be equipped with conventional overhead luggage racks for overnight cases or small handbags, and bulky luggage will be stored in an out of the way compartment by attendants. At terminal stations this luggage will be transferred directly to the outside without being piled up in the aisle first. Passengers thus will be able to disembark as soon as the train stops instead of waiting for baggage to be cleared away.

For the foregoing details and accompanying illustrations we are indebted to our American contemporary, the *Railway Age*.

New 4-8-4 Locomotives for the South Australian Railways

The latest high-speed streamline locomotives are designed for use on either fast-passenger or fast-freight train working



WE have received recently from Mr. C. B. Anderson, Railways Commissioner for South Australia, a detailed description and illustrations of the new "520" class locomotives designed by Mr. F. H. Harrison, Chief Mechanical Engineer of the South Australian Railways, and constructed in the Islington workshops. The 4-8-4 wheel arrangement has been adopted, and the present series consists of seven locomotives, the first of which was placed in traffic on November 10, 1943, and was named after Sir Malcolm Barclay-Harvey, who was Governor of South Australia from 1939 until recently. Speeds of 70 m.p.h. are contemplated for these engines, which are intended for use on either passenger or freight services. All recent improvements in locomotive construction have been incorporated in the design, which may thus be considered as representative of the most recent developments in locomotive practice.

Roller bearings to all axles, both engine and tender, form one of the most important features of the new type. Lateral wear is thus eliminated, and wheels now need be removed only when flange wear has reached the maximum permissible figure. This is the first Australian engine to have roller bearings throughout.

To assist the engine round curves, the leading coupled-wheels and the leading wheels of the trailing-bogie are fitted with lateral motion devices; that for the coupled wheels is spring-controlled, and that for the trailing-truck applies a constant resistance.

There are two cylinders, 20½ in. diameter by 28 in. stroke, driving on to the second pair of coupled wheels. The cylinders are of welded steel construction—again in this respect the first in Australia—and have liberal steam and exhaust port areas. Cast-iron liners are used for the cylinder barrels and steam chest. The use of welded construction has resulted in a saving in weight of 14½ per cent.

The pistons are of cast-steel lightweight design, fitted with a bronzed surface to protect the cast-iron liners. Three deep rings are provided. Both piston rods and valve spindles are fitted with spring-loaded packing with a single ring of copper-lead mixture.

The piston valves, 12 in. in diameter, are actuated by Walschaerts valve gear controlled by air-operated power reversing gear. Automatic steam drifting equipment is provided, to supply steam to the cylinders and prevent the formation of a vacuum when coasting; this equipment, developed by Mr. Harrison, is arranged so that when steam chest pressure falls below 5 lb. per sq. in., a vane connected to the indicator figure of a pressure gauge uncovers a small air-port which permits air at 25 lb. per sq. in. to operate an automatic steam drifting valve. This allows saturated steam from the dome to pass into the steam chests and maintain a pressure of 5 lb. per sq. in. there when the regulator is closed. When the steam-chest pressure rises above 5 lb. per sq. in. the vane closes the air port and cuts off the air supply to the operating valve, which remains closed until the steam chest pressure again falls below 5 lb. per sq. in. A positive pressure is thus ensured in the steam chest at all times, and the device is independent of vacuum for the operation of the drifting valve.

Two mechanical lubricators are provided, one for the main cylinders and valves; the second is an automatic lubricator for the air compressor.

The frames, of the built-up bar type, are of cast-steel, bolted together with cast-steel frame braces. Spring-controlled adjustable taper wedges are fitted; the horn cheeks are lined with phosphor bronze wearing shoes, grease-lubricated. Although built to the 5 ft. 3 in. gauge, the locomotive is designed for conversion to 4 ft. 8½ in. gauge; the only necessary alterations are the replacement of existing wheel centres and the shortening of the brake hanger cross-beams.

The boiler and the Belpaire firebox are of ample capacity; the working pressure is 215 lb. per sq. in. A Superheater Co. Ltd. superheater of the "AM" type is fitted. All-welded steel construction is used for the firebox, which also incorporates two thermic syphons. The tube plate, door sheet, and syphon joints are all butt joints, electrically welded; no riveted joints are used in the firebox. Flexible stays have been provided throughout the breaking zone to reduce fractures, and hollow stay-bolt steel is used for all flexible stays and crown stays.

A steam jet is fitted in the firebox to improve combustion, by eliminating smoke and reducing coal consumption. The latest type of Davies & Metcalfe exhaust steam injector is arranged on the right-hand side and a Nathan non-lifting injector on the left; the respective capacities are 3,600 and 3,500 gal. per hr. Two plunger-type blow-off cocks are provided, one on each side of the firebox, operated by levers from the cab; the right-hand cock is supplied with a blow-down muffler which is situated on top of the boiler barrel. A hopper ashpan is fitted; it has horizontal sliding doors operated by air cylinders.

The smokebox has a self-cleaning front end and radial-ported blast pipe and double-draughting petticoat. Due to the extra long distance from smokebox tube-plate to chimney (on account of the long wheelbase) and the desire to limit the tube length to 19 ft., a false diaphragm has been fitted to reduce the smokebox volume.

The engine is fully streamlined and has a roomy totally-enclosed cab, with good ventilation and excellent lighting. An electric headlight is placed in front of the smokebox, and is supplied by a turbo-generator. The streamlining is so arranged that it does not interfere with accessibility for maintenance purposes; the front portion is carried on hinges and will readily swing out and expose the smokebox door. For ordinary examination, the smaller smokebox door can open inside the front extension nose.

A staff exchanger, operated from the cab, is provided for exchanging staff at run-through stations up to 50 m.p.h.

With the exception of boiler plates, roller bearings, and exhaust steam injector, all the material used in these locomotives was produced in Australia, and all fabrication was carried out in the Islington workshops.

All-welded steel construction is used for the tender, which has self-trimming coal bunkers. The Westinghouse automatic (hydrostatically controlled) variable-load brake is fitted. Two six-wheel bogies are used, to keep axle loadings within the limits laid down.

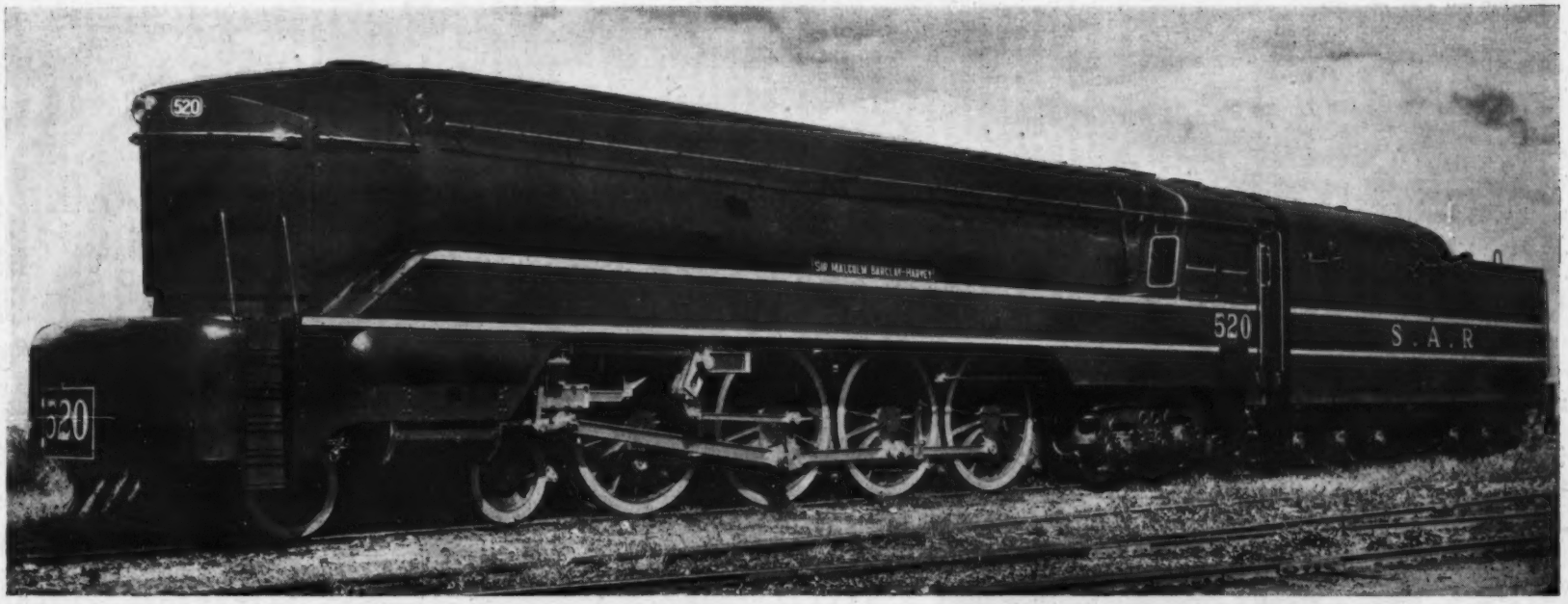
The tank is welded to an all-welded steel structure which also forms the bottom of the tank, thus effecting a 33 per cent. saving in weight. Spot welding was largely used; all the side stiffening plates are spot-welded; the maximum added thickness is ¼ in. All-welded bogie frames, fabricated from plate and pressings, are used, giving a 22 per cent. saving in weight over cast steel. The tank capacity is 9,300 gal., and the coal capacity 7 tons. The tender bogies are fitted with clasp brakes.

The main particulars of the locomotive are:—

Gauge	5 ft. 3 in.
Cylinder dia., in.	20½
,, stroke, in.	28
Coupled wheels, dia.	5 ft. 6 in.
,, wheelbase	17 ft. 9 in.
Engine wheelbase	41 ft. 1 in.
Boiler pressure, per sq. in.	215 lb.
Heating surface, tubes, sq. ft.	2,163
,, ,, firebox and syphons, sq.ft.	291
,, ,, total	2,454
Superheating surface, sq. ft.	651
Grate area, sq. ft.	45
Tractive effort at 85 per cent. boiler pressure, lb.	32,600

(Continued on page 97)

New 4—8—4 Locomotives for the South Australian Railways



General view of one of the 4-8-4, class "520" locomotives designed by Mr. F. H. Harrison, Chief Mechanical Engineer, South Australian Railways

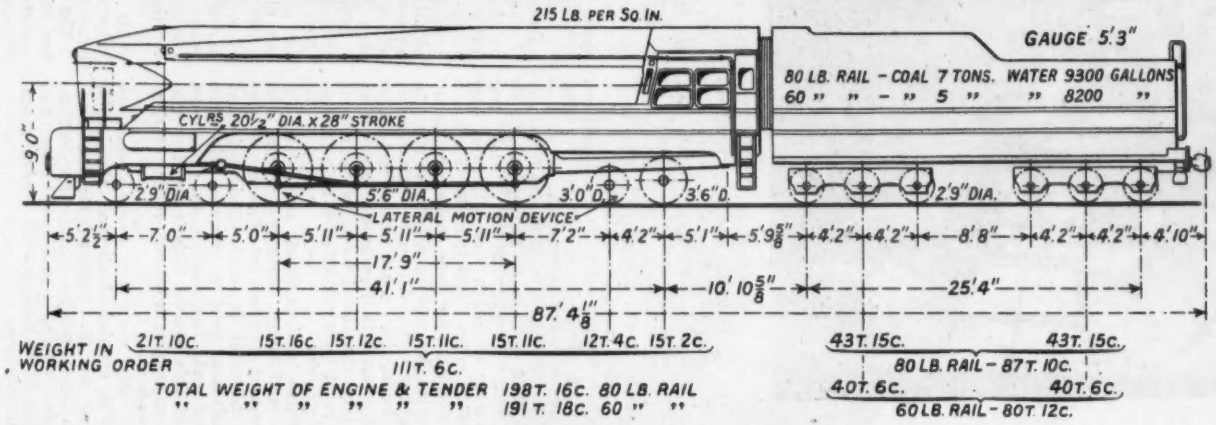
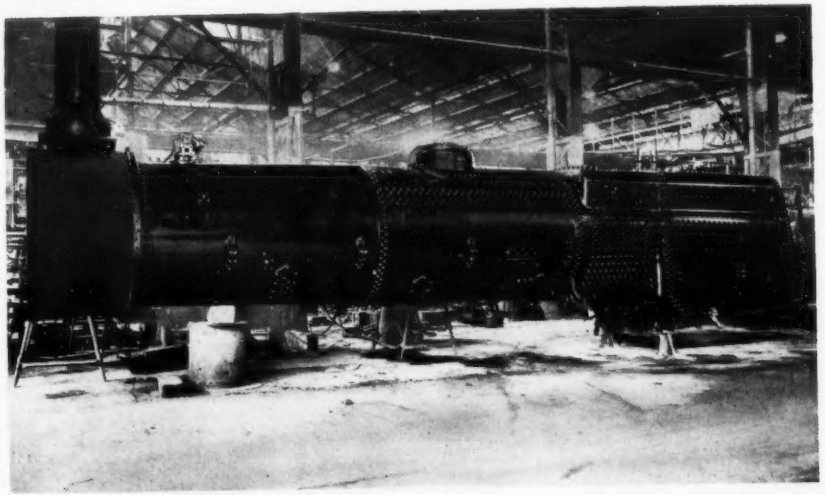
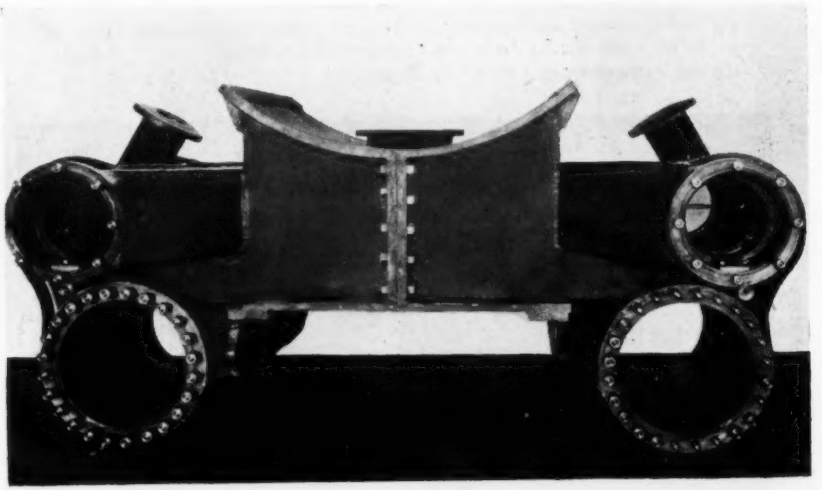


Diagram showing principal dimensions and weights of the locomotive

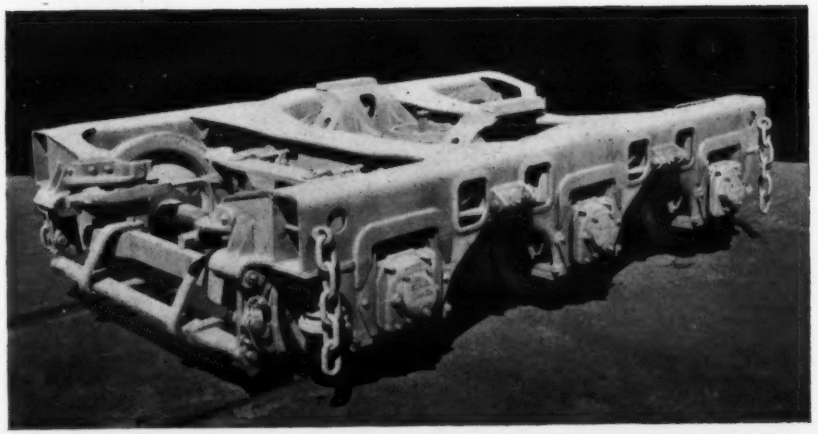
Diagram showing principal dimensions and weights of the locomotive



General view of the boiler during construction

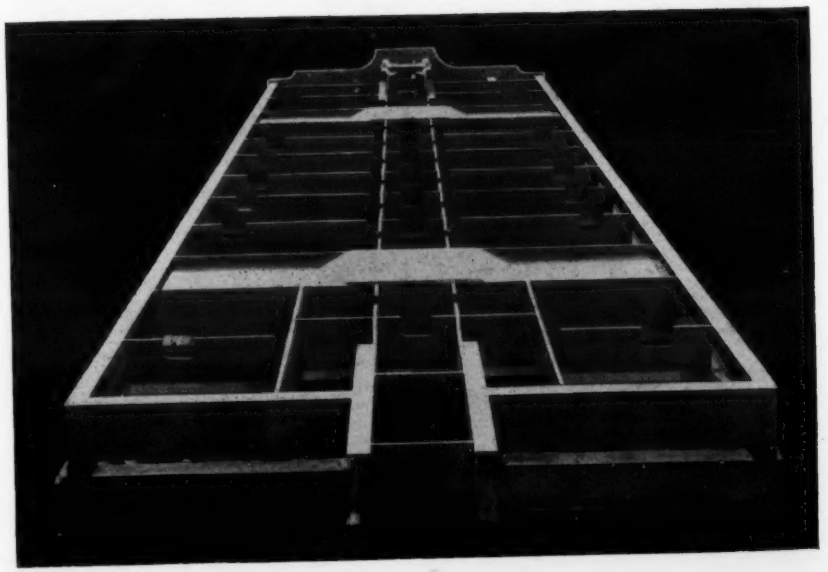


The cylinders, which are of welded-steel construction

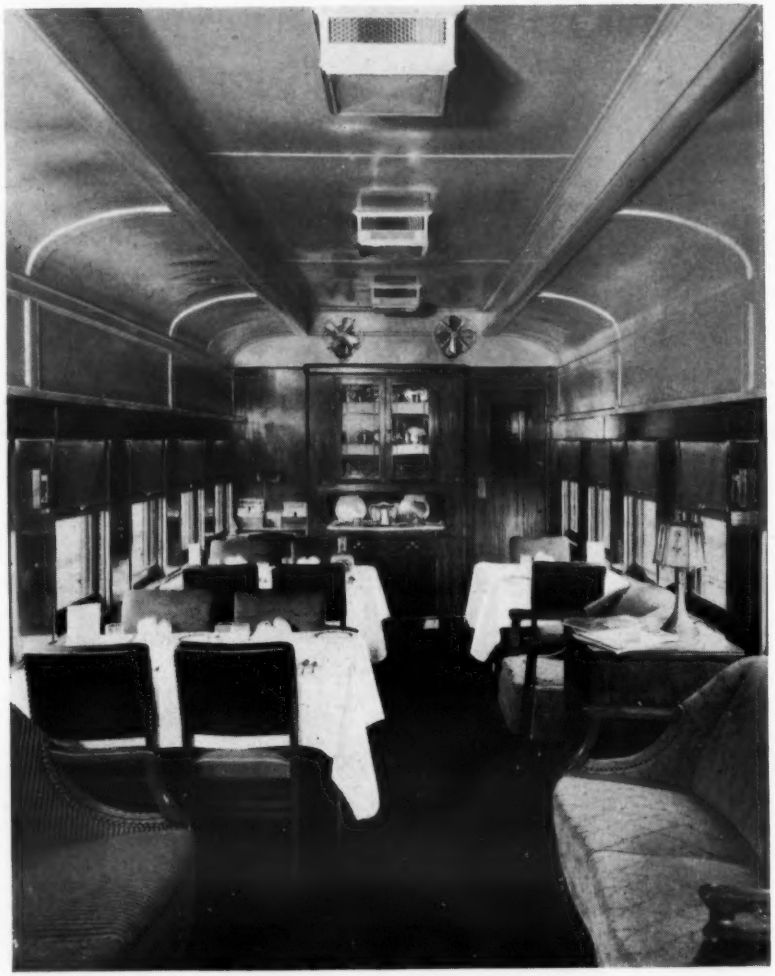


Above: One of the six-wheel tender bogies

Right: The welded tender frame



Modern Interior Designs in Canadian Pacific Railway Passenger Stock



Buffet-lounge end of C.P.R. compartment-buffet-lounge car "Lake Winnipeg," recently re-finished under direction of the company's post-war equipment committee. The wood finish has been bleached, and soft green and rich ivory are used for upper walls and ceiling

The "Bear River," a C.P.R. dining car, with accommodation for 40, converted from a compartment-observation car, represents a piece of practical post-war planning. Two-tone French grey paint replaces the traditional wood finish in the interior

RAILWAY NEWS SECTION

PERSONAL

COLONIAL RAILWAY APPOINTMENT

The Secretary of State for the Colonies recently approved the following appointment :—

Mr. S. T. Crampton, Assistant Chief Accountant, Nigerian Railway, to be Chief Accountant.

Mr. E. Casey, A.M.Inst.C.E., who, as recorded in our January 5 issue, has retired from the position of General Manager of the New Zealand Government Railways, was born in London in 1885, and later went to New Zealand. After attending Auckland University, he joined the Government Railways Department as a cadet in the Civil Engineering Branch in 1902. In 1912 he became Assistant Engineer, Auckland District, and in 1916 took charge of the grade-easement works between Penrose and Mercer. In 1921 he was transferred to the Christchurch District, and was engaged on remodelling the station yards on the Midland line before the opening of the Otira Tunnel. When it was decided to proceed with the new station at Auckland, and the Auckland-Westfield new railway, Mr. Casey was selected to take charge of that work. In 1925 he was appointed Inspecting Engineer for the New Zealand Railways with headquarters at Wellington, and in 1926 was transferred to Auckland as Divisional Superintendent of the North Island. In 1931 he became Chief Engineer of Railways, and in 1933 was appointed Assistant General Manager. Mr. Casey was appointed General Manager in February, 1940.

Mr. FitzHerbert Wright has resigned his seat on the board of the Butterley Co. Ltd. He is a Director of the London & North Eastern Railway Company.

We regret to record the death on January 16 of Mr. Frederick Arthur Lowry Barnwell, who was the last General Manager of the North Staffordshire Railway (from 1919 to 1923).

Mr. J. Sawers, Assistant General Manager, New Zealand Government Railways, who, as recorded in our January 5 issue, has been appointed General Manager, joined the Railways Department at Dunedin as a cadet in 1906, and served in various capacities in the Otago District until his transfer to Head Office, Wellington, in 1924. In 1928 he became Information Officer, and he retained that position until his appointment as Goods Agent at Christchurch in 1936. He was appointed Assistant Traffic Manager at Auckland in 1937, District Traffic Manager, Auckland, in the next year, and Assistant General Manager in 1940. Mr. Sawers served with the New Zealand Expeditionary Force during the last war, and at its conclusion spent some time attached to British railway companies.

Mr. E. Casey

General Manager, New Zealand Government Railways, 1940-44

Mr. J. Sawers

Appointed General Manager, New Zealand Government Railways

The Imperial Smelting Corporation Limited announces that Mr. D. P. C. Neave has been elected to the board and appointed a Joint Managing Director.

L.N.E.R. APPOINTMENTS

The L.N.E.R. announces the following appointments :—

Mr. J. E. M. Roberts, District Superintendent, Darlington, to act temporarily as Assistant to the Divisional General Manager (North Eastern Area).

Mr. E. H. Baker, Assistant to the Locomotive Running Superintendent (Eastern Section), Southern Area, to be District Locomotive Superintendent, Peterborough.

Mr. G. Smith, Deputy Head of Central Traffic Office, Marylebone, to be Assistant District Superintendent, Darlington.

Mr. G. F. Fiennes, District Superintendent, Nottingham, to be District Superintendent, Stratford, *vice* Mr. F. C. Wilson, retired.

Mr. S. Fisher Page has joined the board of the Timber Fireproofing Co. Ltd.

The late Lord Herbert Scott, who was Chairman of the Westinghouse Brake & Signal Co. Ltd., left £12,060.

Mr. Harold Elliott has relinquished his appointment as Director of Transport, Middle East Supply Centre, Cairo, and has been released by the Ministry of War Transport to resume duty with Pickfords Limited.

The late Lord Essendon, who was Chairman of Furness, Withy & Co. Ltd., and associated companies, and of Royal Mail Lines Limited, left £481,613.

We regret to record the death on January 15, at the age of 73, of Mr. James Edward Anderson, C.B.E., M.I.Mech.E., who was Superintendent of Motive Power, L.M.S.R., from 1923 to 1932. Mr. Anderson was born in 1871, and served his apprenticeship with the Great North of Scotland Railway. He was later with the Glasgow & South Western Railway as leading draughtsman, and afterwards became Assistant to the Chief Draughtsman of Robert Stephenson & Co. Ltd. Mr. Anderson joined the Midland Railway in 1903, was appointed Chief Locomotive Draughtsman in 1906, and Works Manager in 1913. From June, 1915, to April, 1919, he was Acting Chief Mechanical Engineer, and he was appointed Deputy Chief Mechanical Engineer in May of the latter year. He was made C.B.E., for his war services, in 1920. He became Superintendent of Motive Power, L.M.S.R., in January, 1923, the position which he held until his retirement in 1932. Mr. Anderson was President of the Institution of Locomotive Engineers for 1924-25.

The late Mr. J. E. Anderson

Superintendent of Motive Fower, L.M.S.R., 1923-32

Home Guard Honours

Among members of Home Guard battalions composed largely of railwaymen, who are on the staffs of the main-line railways or the L.P.T.B., and who have received honours recently, are:—

O.B.E.

Lt.-Colonel R. E. Hagley, O.C. 2nd Buckinghamshire (Wolverton) Battalion (Assistant to Works Superintendent, Carriage & Wagon Maintenance, Wolverton, L.M.S.R.); Lt.-Colonel J. B. Woodward, O.C. 60th County of London (L.P.T.B.) Battalion (Assistant Divisional Engineer, Central Buses, L.P.T.B.).

M.B.E.

Major F. I. V. Day, 13th Wiltshire Battalion (Clerk-in-Charge, G Shop Office, Locomotive Works, Swindon, G.W.R.); Major P. H. Spence, 2nd Somerset Battalion (Assistant, Divisional Engineer's Office, Taunton, G.W.R.); Regimental Sergeant-Major W. G. Triscott, 38th County of London Battalion (Storekeeper, Road Motor Engineer's Department, G.W.R.); Captain P. H. Hine, 37th County of London Battalion (Clerk, Parcels Department, Euston, L.M.S.R.); Major F. M. Clark, M.M., 16th City of London Battalion (Cashier, District Goods Manager's Office, Somers Town, L.M.S.R.); Major R. Simpson, 7th City of Glasgow Battalion (Chief Staff Clerk, Chief Operating Manager's Department, Glasgow, L.M.S.R.); Captain E. A. Place, 17th Durham (L.N.E.R.) Battalion (Stationmaster, Middleton-in-Teesdale, L.N.E.R.); Captain S. M. Kew, 28th Kent (1 S.R.) Battalion (Traffic Department, Continental Department, Southern Railway); Major C. Savage, 21st Hampshire (4 S.R.) Battalion (Traffic Department, Portsmouth, Southern Railway); Major F. C. Galliford, 22nd Devonshire (5 S.R.) Battalion (Motive Power Department, Barnstaple, Southern Railway).

Mr. A. I. MacMillan, New Works Assistant, Divisional Engineer's Office, Glasgow, L.M.S.R., who, as recorded in our January 5 issue, has been appointed District Engineer, Irvine, was educated at Morrisons Academy, Crieff, and joined the Caledonian Railway in 1914, as an apprentice in the Chief Engineer's Office under Mr. W. A. Paterson. He saw service with the Royal Artillery in France from 1916 until 1919, when he returned to complete his apprenticeship. Afterwards he was an Assistant Engineer on the construction of Gleneagles Hotel and Station. After the amalgamation he was a member of the New Works Department of the L.M.S.R. under Mr. D. McLellan, Divisional Engineer, Lowland Division, and acted as Resident Engineer on numerous works, including the construction of Saltcoats sea wall. In 1933 he was appointed by Mr. W. K. Wallace, Chief Engineer, as New Works Assistant to Mr. A. H. McMurdo, Divisional Engineer, Glasgow, since when he has supervised the construction of all new works carried out by the company in Scotland. These included the reconstruction of a large number of bridges, extensive dock and harbour repair works at Ayr, Troon, and Grangemouth, works in connection with marshalling yards, sidings and passing loops, and widenings.

Mr. A. I. MacMillan

Appointed District Engineer, Irvine, L.M.S.R.

Inspecting the L.N.E.R. standard first class coach referred to in our last week's issue

Left to right: Sir William Wood, President, L.M.S.R.; Sir Charles Newton, Chief General Manager, L.N.E.R.; Sir James Milne, General Manager, G.W.R.; Sir Ronald Matthews, Chairman, L.N.E.R.; Mr. V. M. Barrington-Ward, Assistant General Manager (Operating), L.N.E.R.; and Mr. George Mills, Divisional General Manager, Southern Area, L.N.E.R.

Mr. A. R. Chapman has been appointed General Sales Manager of Babcock & Wilcox Limited.

TRANSPORT SERVICES AND THE WAR—278

An Allied Supply Feat

A noteworthy Allied supply achievement is the shipping of 300,000 American and Canadian road motor vehicles across the Atlantic in millions of parts for assembly in Great Britain and use on the Western war fronts by the Allied armies. This vast assembly programme was begun in 1940 by the mechanisation branch of the Ministry of Supply. In May, 1943, the number of plants was increased from the original 12 to 39, employing 100,000 workers. The maximum weekly output of 6,537 assembled vehicles was reached in April, 1944.

French Train Services

It was announced in Paris on January 12, that, with the exception of the trains forming part of the new London-Paris service, all steam-operated long-distance passenger trains were being suspended throughout France from Tuesday, January 16, by reason of coal shortage. Steam-operated suburban services (particularly workmen's trains) are being continued, as also are electric train services. A skeleton main-line service is being maintained with diesel driven railcars; such railcars have formed a prominent part of the French train services ever since the Allied landings. Steam-hauled goods trains are now including two passenger carriages. Journeys in excess of 100 km. (62 miles) are authorised only for persons on official missions.

The civilian service between London and Paris was duly restored on January 15, as had been announced. Details of the route, and of the Southern Railway terminus in London from which the service operates, are not available for publication at the moment. The cross-Channel connection is maintained by a Southern Railway vessel which was formerly engaged on this service and has been handed back to the company by the Government. The first London boat train left a Paris station, also on January 15, soon after the first civilian boat train from London had arrived, according to the Paris radio. The single fares for the trip are:—

First class with saloon accommodation on the boat, £5 12s. 6d;
First class on train and second class on boat, £5 1s. 6d. Third class boat and train, £3 8s. 6d.

The Eighth U.S. Army Transportation headquarters has announced that the public passenger train service between Cherbourg and Paris was resumed on January 8, with two trains each way daily, making the run in 11 hr. 50 min. A limited service was begun for goods and priority travellers on September 15 last (see our October 13 issue, page 361).

Curtailment of U.S.A. Travel

Mr. James F. Byrnes, U.S. Director of War Mobilisation & Reconversion, appealed on January 5 for a curtailment of non-essential travel, and particularly for a cessation of group meetings, such as conventions and trade shows, not necessary in the war effort. Even the invitations to the Presidential inaugural ceremonies on January 20 were restricted as never before because of war demands on transport. Mr. Byrnes pointed out that in 1942, after Pearl Harbour, American associations voluntarily cancelled many conventions and trade shows. However, during the past year, the optimism which led many to believe that victory was at hand, also led to a substantial increase in the holding of conventions and post-war trade shows. He added that the American railways now had 38,872 coaches and other passenger units, compared with 53,941 in 1918. Organised military movements alone in 18 months of this war had required the transport of 16,000,000 persons, compared with 6,500,000 in a corresponding period during the First World War. There were now about the same number of coaches and only a limited number more sleeping cars than in 1939. The military authorities were using 10 to 15 per cent. of the coaches and almost half of the sleeping cars. Revenue passenger miles had increased from 22,600,000 in 1939, 29,000,000 in 1941, and 53,600,000 in 1942, to an estimated 96,000,000 in 1944.

With the approval of the President, Director J. M. Johnson, of the Office of Defense Transportation, had been asked to head a committee to be composed of representatives of the War and Navy departments, the War Production Board, and the War Manpower Commission to receive and pass upon applications for the holding of group meetings to be attended by more than 50 persons, to determine if the need for these meetings was sufficiently in the war interest to warrant the tax on transport. Mr. Byrnes requested that all conventions to be attended by more than 50 persons and scheduled to be held after February 1, 1945, be cancelled unless approved by this committee as necessary in the war effort.

It was announced in New York on January 17 that a 30-hour blizzard, raging through the eastern United States, had so imperilled the movement of war goods that the Office of Defense Transportation had that day directed railways to eliminate passenger services if necessary to keep war materials moving. Already thousands of freight cars had been held up. As a result, passenger train services throughout the States of New York, Ohio, Pennsylvania, and Indiana might be cancelled. An hour after the O.D.T. announcement, the New York Central System curtailed its passenger services.

Aid to Russia through Persia

The remarkable Russian winter offensive, culminating in the great sweep through Poland during the past ten days, would have been impossible without lengthy and careful preparations in the form of supply lines. The U.S.S.R. itself, of course, has been mainly responsible for these in the areas behind the fighting lines, but Allied help further back has been far from negligible. Some indication of this has been given from time to time in details which have been released concerning supplies to Russia through Persia, and it has now been announced that, by the end of last year, more than 4,380,000 tons of war implements and goods from the U.S.A. factories had been delivered *via* rail and road through the Persian Corridor. Great Britain, through the United Kingdom Commercial Company and British Army Motor Transport Operations, has shipped 785,830 tons.

The capacity of the Gulf ports of Bandar Shahpur and Khorramshahr was first developed by British Empire Forces in a way which we hope to describe in due course. It has been further developed since January, 1943, when the U.S. Army took over operations at those points. At that time the monthly capacity of the two ports was 95,000 tons. The capacity of the twin ports was increased to 265,000 tons by October, 1944. It is stated that, three days after the arrival of American railway troops in Persia, the first shipment of parts of what was to total 57 diesel locomotives, 91 steam locomotives, and 2,300 railway wagons, was standing on the docks of the humid gulf port of Khorramshahr waiting assembly. The vessel with the assembly tools had not yet arrived, and the men searched their own personal baggage for favourite implements prized from many years of tested service with which they began a hand-assembled railway shop.

In the first ten months of 1944, 1,344,151 tons of supplies for Russia were carried over the 680-mile haul from Khorramshahr to Teheran. Every month of 1944 saw as much tonnage over the line as was carried in the entire year of 1942. In July, 1944, a record of 171,381 tons was hauled.

Army engineers faced many problems in establishing and maintaining the largest cartage company in the world at the land terminus of what was in December, 1942, the longest supply route in the world. Hard-surfaced roads had to be constructed. One hundred American technicians and 2,500 officers and men built 435 miles of highway.

Belgian Railways Meet Military Needs

Speaking in Brussels on January 17, M. Earnest Rongvaux, Belgian Minister of Transport, stated that all military traffic requirements had been met satisfactorily by the Belgian National Railways Company. The company, he added, must be praised for the skill displayed in using its remnants of equipment, plant, and rolling stock. Contrary to rumours, all the coal handed over to the railways for transport had been duly forwarded.

Sunday Loading in Hungary

The pressure on the dwindling railway system still remaining at the disposal of the Hungarian State Railways in the country's German-controlled areas caused the Hungarian Minister for Trade & Transport to issue an Order in the middle of November that loading and unloading of wagons must proceed on Sundays and holidays in respect of both Hungarian and international traffic. The Order provides further that, to December 31, 1945, demurrage fees must also be applied in respect of Sundays and holidays.

Austerity Travel in Denmark

According to a recent announcement of the General Management of the Danish State Railways, the public must travel this winter without any comfort, and train services are being curtailed drastically. Trains are not heated and no extra trains were run during the Christmas period. It is stated that the conveyance of vital goods requires all available locomotives. Passengers who cannot be carried by train are left behind at the stations without being entitled to make any claim. To avoid overcrowding on the Great Belt ferries, admission tickets are distributed.

The Railway Situation in Roumania

There is considerable obscurity about the railway situation in Roumania now that the country is under Russian guidance, and occupies an important place on the supply route of the Russian Forces fighting in Hungary. It seems likely that some, at any rate, of the Roumanian railways have been converted by the Russians to their 5 ft. gauge (probably in Bessarabia), but it is improbable that this policy could have been adopted to any very considerable extent in other parts of the country, in view of the complexity of the railway network. The Roumanian Minister of Communications (M. Gheorghin-Dej, a Communist), said, in an interview published in *România Libera* on November 24 last, that the situation of the railways was very difficult. The available rolling stock was insufficient to meet the demand for the transport of troops, military equipment, and other military supplies, as well as the supply requirements of the population. Some 9,000 goods wagons, or 20 per cent. of the rolling stock, had been destroyed or severely damaged, and repairs were held

up through the damage suffered by the railway workshops. The greater part of the destroyed railways could not yet be restored. The worst-affected areas were Moldavia and northern Transylvania, the scenes of the heaviest fighting. The destruction of locomotive sheds, marshalling yards, and repair shops, had had particularly grave consequences. To improve the position, a reorganisation of the transport system was being undertaken, on the basis of greater decentralisation. The Minister said he was in close touch with high Soviet authorities, whose friendly collaboration would result in an improvement of the transport situation.

Norwegian Railways Attacked

Norwegian parachutists, flown from Great Britain this month, have attacked the most important north to south railway lines in Norway on various occasions, causing practically complete cessation of traffic at numerous places, according to Norwegian circles in London. On the Nordland Railway, the only rail link between North Norway and Trondheim, the line was cut by blowing up a bridge near Joerstad at 9 a.m. on January 13. A German troop train, consisting of a locomotive and 20 carriages, which was crossing the bridge at the time on its way south was hurled into the ravine; 180 soldiers were killed and several hundred injured, according to the Stockholm newspaper *Morgen-Tidningen*, which added that two A.A. gun wagons coupled to the train were destroyed. It is considered that German railway engineers will not be able to make good the damage for a considerable time. The railway lines are of vital importance to the Germans, not only in Norway, but also for the conduct of their battles in the West. It is estimated that from three to four divisions from Norway have been sent to the Western Front.

German Controller of Civilian Transport

An Order issued on December 13 by the German Controller General for Armament (*Generalbevollmächtigter für Rüstungsaufgaben*) in consultation with the Reich Minister of Transport established a new supervisory organisation for Reichsbahn civilian traffic to direct civilian goods transport within the requirements of the war economy. The Order appointed in every traffic management district (*Bezirksverkehrsleitung*) a district controller for civilian goods transport (*Bizirksbevollmächtigter für Wirtschaftstransporte*), in addition to a regional controller (*Gebietsbevollmächtigter für Wirtschaftstransporte*) for every traffic management region (*Gebietsverkehrsleitung*).

German Train Cancellations

All "D" (express) and "E" (fast) trains, including the public compartments attached to leave trains were cancelled throughout Germany from January 23, according to the German radio. All services in East Prussia were previously disorganised by the rapid Soviet advance.

Appeal for German Wagon Repair

The last few months have been marked by some unusual developments in German railway advertising. The German State Railway more or less suspended Press advertising early in the spring of 1943, when the nation-wide railway advertising campaign based on the slogan *Räder müssen rollen für den Sieg* (The wheels must turn for victory) was allowed to lapse. The resumption of advertising in the autumn of last year is particularly interesting as it coincided with the German total mobilisation programme which, among other measures, included drastic curtailment of the Press and resulted in the reduction of advertising in general. The new German advertisements appear to consist of three series dealing with entirely different subjects: one is an appeal for staff; the second an appeal to industry to undertake the repair of railway rolling stock; and the third a new drive to expedite the turn-round of goods wagons.

The second series, of which we reproduce two examples, deals with the importance of having every available wagon in service and contains an appeal to all industrial undertakings, both large and small, who are in a position to do so, to volunteer at once to the nearest Reichsbahndirektion responsible for railway workshops, to undertake the repair of either complete wagons or wagon parts. It is probably unique for a large railway to issue an appeal to industry in the form of Press advertisements, to volunteer to repair its rolling stock. One of the most interesting features of the advertisements is that in a totalitarian country, where labour and industrial mobilisation is supposed to be organised so highly and control to be so strict, it should be necessary to advertise in the daily Press for firms to undertake to repair railway rolling stock. This suggests a weakness in, or disruption of, industrial planning, and in the allocation of plant, labour, and materials. If control had been efficient, work of such a high priority would have been allocated the necessary plant and labour and materials quickly. It is probable, in any event, that the number of firms with plant and labour not fully occupied and able to undertake the work, even if the materials were supplied by the Reichsbahn from its own allocation, would be limited. Incidentally, the need to get repair work undertaken in this way implies that concern must be felt over the condition of the rolling stock, and that there is a large number of vehicles in need of maintenance and repair with which the railway workshops themselves are unable to cope.

A correspondent in Switzerland wrote to us recently: "According to reports from Germany, an increasing number of goods wagons has been rendered unserviceable in the past few months by Allied bombing attacks. To this must be added the large number of vehicles not in working order as a result of excessive wear and tear. This state of affairs caused the Reich Transport Ministry to make an appeal to industrial and trading concerns which are regular users of railway wagons to assist in keeping wagons in good repair, and to repair them by their own means as far as possible, in view of the fact that the railway works and repair shops are sorely overburdened with similar work. Even where the will exists to conform to the exhortations, it seems in most cases impossible for the firms concerned to effect the repair work they are required to do, because of acute shortages of materials and labour."

Reproductions of two German newspaper advertisements, published last September, appealing to industrial undertakings to volunteer to repair railway wagons and parts

Noteworthy American Railway Achievements

Statistics given in the accompanying table, for which we are indebted to our U.S.A. contemporary the *Railway Age*, show how the railways of the United States have accomplished what would have been regarded a few years ago as the impossible task of handling, with substantially fewer locomotives and carriages, a passenger traffic which in 1944 was four and one third times as large as in 1940 :—

U.S.A. RAILWAY PERFORMANCE IN HANDLING PASSENGERS

	July, 1920	July, 1940	July, 1942	July, 1943	July, 1944
Number of passenger locomotives	13,562	7,306	7,017	6,823	6,794
Number of passenger-carrying carriages ...	41,564	27,592	27,706	27,902	28,545*
Passengers carried one mile (thousands), average daily	154,871	72,374	153,693	269,958	280,830
Passenger train-miles, average daily	1,568,000	1,082,000	1,159,000	1,282,000	1,297,000
Passenger train-miles per locomotive, average daily	116	148	165	188	191
Passenger-carrying car-miles, average daily ...	7,008,000	4,892,000	6,271,000	7,967,000	8,272,000
Average miles per passenger car daily ...	168	177	226	285	290
Average passenger-carrying cars per train ...	4·5	4·5	5·4	6·2	6·4
Average passengers per car	22·1	14·8	24·5	33·9	33·9
Average passengers per train	98·7	66·9	133·0	210·5	216·4
Average trip per passenger (individual railway)	41·9	57·2	79·2	98·6	102·4
Passengers carried one mile per locomotive, average daily	11,419	9,906	21,903	39,566	41,335
Passengers carried one mile per passenger car, average daily	3,726	2,623	5,547	9,675	9,819

* Estimated

Passenger carriages carried an average of 14·8 passengers and moved 177 miles daily in July, 1940, compared with carrying 33·9 passengers and moving 290 miles daily in July, 1944. Hence, the number of passengers carried one mile per carriage averaged 2,623 in 1940 and 9,819 in 1944. Every passenger locomotive on the average pulled trains 148 miles daily in 1940 and 191 miles daily in 1944. Average passengers per train in 1940 were 66·9 and in 1944 were 216·4. Hence every passenger locomotive carried an average of 9,906 passengers one mile daily in 1940 and an average of 41,335 passengers one mile daily in 1944.

The achievement of railways in handling as safely and well as they have the vastly increased military and civilian passenger traffic of World War II will rank as one of the greatest achievements of this war period.

Staff and Labour Matters

Workmen's Compensation

The "Monckton" Committee on Workmen's Compensation—Alternative Remedies, has issued an interim report which has been published as a White Paper by the Home Office. The Committee states that on October 25, it was informed by the Lord Chancellor that a Bill had been drafted to give effect to the recommendations of the Law Revision Committee contained in their report on the law of contributory negligence.

Stated shortly, the effect of the draft Bill was to abolish the common law rule that a plaintiff suffering loss through his own fault and that of the defendant must bear the whole of the loss and be without remedy against the defendant, and to substitute for it a new rule under which the plaintiff's loss would be divided between him and the defendant according to the degree in which each was at fault.

The Lord Chancellor asked for the Committee's opinion on the question whether the Bill should make any special provision for the case of actions by workmen, whether brought against their employers or against persons other than their employers.

The Committee recommends that the following should be excluded from the Bill :—

Any action brought by a workmen, or his personal representatives, or his dependents, against his employer, claiming damages for breach of the employer's duty to take care for the workmen's safety, whether that duty arises at common law or under statute, and

Any action brought by a workman, his personal representatives, or his dependents, under the Employers' Liability Act, 1880, and

Any action brought by an employer against his workman claiming damages for any breach of duty committed by the workman in the course of his employment.

Actions by workmen against persons other than their employers should not be excluded from the Bill.

A provision should be inserted in the Bill empowering the Court under section 30 of the Workmen's Compensation Act, 1925, to apportion the blame between the workman and the person other than the employer, and to order that person to indemnify the employer (or the person claiming an indemnity under Section 6) according to the degree of his fault.

G.W.R. Bus Staff

The decision of the Chairman of the Railway Staff National Tribunal recently has been issued on a claim by the National Union of Railwaymen :—

"That the Great Western Railway staff on loan to the Western National and Western Welsh Omnibus Companies should have applied to them the terms of the agreement recorded in Railways Staff Conference and National Union of Railwaymen Minute No. 1,265, dated April 23, 1940, and that they should be granted the conditions of service laid down in the National Agreements of 1919/20 as amended by subsequent decisions."

The claim relates to the conditions of service of members of the staff of the Great Western Railway formerly employed in connection with that company's road passenger vehicles but who have been employed since 1929 in connection with the bus services of the Western Welsh and Western National Omnibus Companies.

The staff employed by the railway companies on the road motor vehicles originally was covered by the conditions laid down in the National Agreements of 1919 and 1920 and subsequent decisions, but by an agreement between the railway companies and the National Union of Railwaymen, dated April 9, 1929, these conditions were varied in certain respects. The agreement dated April 9, 1929, was terminated by the provisions of R.S.C. and N.U.R. Minute No. 1,265 of April 23, 1940 ; the companies and the union agreed that the staff covered by the 1929 agreement be brought within the provisions of the National Agreements of 1919 and 1920 and subsequent decisions.

The issue to be decided is whether the terms of the above mentioned minute apply to the Great Western Railway staff employed in connection with the bus services of the Western Welsh and Western National Omnibus Companies, and the Chairman finds in favour of the claim.

Pan-American Railway Congress

The following are the principal railways which, according to the latest information, will be represented at the Pan-American Railway Congress to be held in Montevideo next November :—

ARGENTINA
- Argentine North Eastern
- Buenos Aires Central
- Buenos Aires Provincial
- Buenos Ayres & Pacific
- Buenos Ayres Great Southern
- Buenos Ayres Midland
- Buenos Ayres Western
- Central Argentine
- Entre Rios
- Province of Santa Fé
- Rosario—Puerto Belgrano
- State Railways

BOLIVIA
- Antofagasta (Chili) & Bolivia
- Guaqui—La Paz
- Machacamarca—Uncia
- State Railways

BRAZIL
- Araraquara
- Bahia—Minas
- Braganca
- Ceará
- Central
- Central Rio Grande do Norte
- Eastern
- Goyaz
- Leopoldina
- Madeira—Mamoré
- Mogyana
- North Western
- Paraná—Santa Catharina
- Paulista
- San Luiz—Therezina
- Santa Catharina
- Sorocabana
- Therezina Christina
- Tocantins

CANADA
- Canadian National Railways
- Canadian Pacific Railway

COLOMBIA
- Antioquia
- National Railways

CHILE
- Antofagasta (Chili) & Bolivia
- Concepcion—Curanilahue
- Rancagua—Teniente
- State Railways
- Taltal
- Tocopilla—Toco
- Transandine

COSTA RICA
- Pacific

ECUADOR
- State Railways

U.S.A.
- Chicago Great Western
- Chicago & Illinois Midland
- Green Bay & Western
- Illinois Central
- Louisiana & Arkansas
- Norfolk & Western
- Reading
- Richmond, Fredericksburg & Potomac
- Kansas City Southern
- Pennsylvania
- Pittsburg & West Virginia

PANAMA
- Chiriqui National

PARAGUAY
- Paraguay Central

PERU
- Cerro de Pasco
- Peruvian Corporation Railways

URUGUAY
- Central Uruguay
- Midland Uruguay
- North Western Uruguay
- Northern Uruguay
- State Railways

VENEZUELA
- Government Railways

Questions in Parliament

Theft of Goods from Railways

Mr. H. Graham White (Birkenhead East—Lib.) on January 17 asked the Parliamentary Secretary, Ministry of War Transport, if he could state the amount of the loss sustained by the railways under the control of the Ministry arising from thefts of goods in transit.

Mr. Noel-Baker in a written answer stated: I regret that I cannot obtain the full information asked for by Mr. White. He may like to know, however, that during the period from January, 1939, to September 30, 1944, two and a half million claims were paid by the railway companies in respect of loss and theft of goods in transit. The total sum paid in settlement amounted to a little over £7,000,000.

Mr. Edgar Granville (Eye—Ind.) on January 17 asked the Parliamentary Secretary, Ministry of War Transport, in what circumstances the personal effects of Cadet Dennis Cox, killed in action August 15, 1943, were lost somewhere between Glasgow and London while in transit from Algiers to Halesworth, Suffolk.

Mr. Noel-Baker stated in a written answer: On August 10 last, the Superintendent of the Mercantile Marine Office in Glasgow delivered the effects of the late Cadet Dennis Cox to a carter used by a cartage contractor for conveyance to Queen Street Railway Station. The effects were to be despatched by rail to Mr. Cox's father, but I am sorry to say that they were stolen on the way to the station, and that the police have not succeeded in tracing either the effects or the thief. An *ex gratia* payment of £100 has been made in compensation to Mr. Cox's father.

Race Train to Cheltenham

Mr. D. L. Lipson (Cheltenham—Ind.) on January 17 asked the Parliamentary Secretary, Ministry of War Transport, how it was possible to provide a special non-stop train on January 6 from London to Cheltenham for the races because of his refusal to the repeated requests from the Cheltenham Town Council and the Cheltenham Chamber of Commerce for better train facilities between London and Cheltenham for business purposes; if there was a dining-car on the train; was it proposed to run this train every alternate Saturday till the end of March for the races; and would he now arrange for one fast train a day each way between London and Cheltenham to meet the needs of the business community.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport) stated in a written answer: Strict instructions have been given by the Minister of War Transport to the railway companies that no special facilities shall be provided for passengers travelling to race meetings. In the Minister's opinion, the provision of this train involved a serious breach of these instructions, and he is taking the action that is required. There was no dining car on the train, but accommodation was reserved for some of the passengers. In Lord Leathers's opinion, this reservation also involved a breach of his instruction that no accommodation shall be reserved on any train except in a strictly limited number of cases and for reasons of national interest. I regret that, owing to the heavy load of essential traffic on this line, it is impossible to provide any additional fast trains for Cheltenham.

(*See editorial article, page* 79)

Shelterers in Underground Stations

Mr. Rhys Davies (Westhoughton—Lab.) on January 16 asked the Minister of Health whether he could state the number of persons who slept at nights in underground stations and tunnels in the Metropolitan area; and how many of that number were homeless.

Mr. H. U. Willink (Minister of Health) in a written answer stated: About 25,000. I regret that I cannot give the number who are homeless as the result of enemy action, but this is not substantial. The shelterers' circumstances are generally well known to the shelter wardens, who advise those who have been made homeless what to do to benefit by the rehousing and other services provided for them.

Motorways

Sir Granville Gibson (Pudsey and Otley—C.) on January 17 asked the Parliamentary Secretary, Ministry of War Transport, if he could indicate the proposed routes to be served by the proposed national motorways; how the figure of £100,000 a mile at pre-war prices was arrived at; the average cost an acre of the land to be appropriated; and if he had any information as to the estimated cost a mile of the German *autobahnen*.

Mr. Noel-Baker stated in a written answer: I would remind Sir G. Gibson that Parliament has not yet granted the statutory powers required for the construction of motorways. I am, therefore, unable to say what routes they will serve. The figure of £100,000 a mile is the best estimate of the possible cost which my advisers can make. They calculate that the cost of land and accommodation works may be between 5 and 10 per cent. of this sum. No useful comparison can be made with the cost of the German *autobahnen*, which were largely constructed by German slave labour from concentration camps.

Passenger Vehicles Construction

Miss Irene Ward (Wallsend—C.) on January 17 asked the Parliamentary Secretary, Ministry of War Transport, on what date the motor vehicle makers made their first approach to him to alter the construction order for the purposes of the export trade; and what authorities and interests be consulted were opposed to the suggested alteration.

Mr. Noel-Baker in a written answer stated: As I informed the House in a debate on the Adjournment on December 21 last, the associations representing the manufacturers and operators of public passenger vehicles made their first proposals for the increase in the permitted weights and dimensions of these vehicles on November 5, 1943. On April 19, 1944, they sent in a memorandum explaining in detail the reasons for their proposals. The Minister of War Transport followed the usual practice of consulting the other Government Departments, and the numerous associations representative of highway authorities, the police, and road users, together with the trade unions of workers who are employed in road transport. As I explained to the House, the weight of the advice which the Minister received was against any increase in the permitted length or width of public passenger service vehicles.

Division of Trunk Roads

Mr. W. F. Higgs (Birmingham West—C.) on January 17 asked the Parliamentary Secretary, Ministry of War Transport, why proposed trunk roads were being planned with a strip of land in the centre, which, during rush periods, prevented the full width of the road being used for traffic in both directions; and if he had considered the advisability of doing away with this and thereby considerably reducing the overall width.

Mr. Noel-Baker stated in a written answer: Where the traffic justifies that course, trunk roads are now planned with two carriageways, divided by a central strip of land. This is done to separate the two streams of traffic going in opposite directions. It is regarded as one of the most valuable of all measures for the promotion of road safety. Wherever possible, the central strip is made wide enough to allow the planting of trees, shrubs and bushes. This not only adds to the amenities of the road, but helps to reduce the danger and discomfort caused by dazzle from the headlights of approaching vehicles.

Taxation of Motor Vehicles

Mr. Rostron Duckworth (Manchester, Moss Side—C.) on January 16 asked the Chancellor of the Exchequer whether figures had been laid before him to show the beneficial effect on our export trade of large motor vehicles should the tax be adjusted to enable them to compete with similar products of other countries; and whether he would make a statement on the matter.

The Chancellor of the Exchequer (Sir John Anderson): I fully appreciate the importance of developing our export trade in motor vehicles, but a number of important factors influences this matter besides the form and weight of domestic taxation. I am not aware that the relation between motor exports and motor taxation can be expressed in figures.

Road Casualties

Mr. Graham White (Birkenhead East—Lib.) on January 17 asked the Parliamentary Secretary, Ministry of War Transport, if he would state the total casualties on the roads, killed and wounded, for 1943 and 1944.

Mr. Noel-Baker in a written answer stated: In 1943, there were 5,796 people killed on the roads and 116,740 injured. In the first eleven months of 1944, the corresponding numbers were 5,807 and 112,833.

Post-War Export

Mr. W. F. Higgs (Birmingham West—C.) on January 16 asked the Secretary to the Overseas Trade Department, to what extent the export merchants who conducted the main export trade of this country had been brought into active discussion on trading necessities associated with post-war export.

Mr. Harcourt Johnston in a written answer stated: In addition to discussions with a large number of individual merchants and merchant bankers, many meetings connected with our post-war trade have taken place between my Department and export groups, a number of which include merchants among their members. The Consultative Committee which advised my Department on its future practice and procedure included a merchant among its members and I have invited a merchant to join the Overseas Trade Development Council.

Advertising in Export Trade Journals

Sir Wavell Wakefield (Swindon—C.) on January 16 asked the Secretary to the Overseas Trade Department, if he was aware that the revival of British export trade was being jeopardised seriously due to the fact that export trade journals were not allowed to publish more advertisements proportionately than they did in 1939 and, in consequence, many advertisements of firms desiring to prepare for the export trade could not be inserted; and because of the increase in our export trade needed, would he remove this obstacle at the earliest possible moment.

Mr. Harcourt Johnston (Secretary, Overseas Trade Department) in a written answer stated: Present regulations due to shortage of paper restrict the proportion of space

devoted to advertising matter in export trade journals, but I am taking up with the Minister of Supply the possibility of relaxing this restriction.

Printed Sales Matter

Mr. W. F. Higgs (Birmingham West—C.) on January 16 asked the Minister of Supply whether he would now withdraw the restrictions on printed matter so that printed sales matter might be proceeded with in connection with the export and home trade.

Mr. C. U. Peat (Joint Parliamentary Secretary, Ministry of Supply) stated in a written answer: The paper supply position does not permit the withdrawal at present of the restrictions on sales matter for the home trade. The Paper Control Orders do not prohibit the sending of catalogues abroad and a small quantity of paper is now being made available for use for this purpose.

Statutory Rules & Orders

Sir Herbert Williams (South Croydon—C.) on January 17 asked the Lord President of the Council how many Statutory Rules & Orders were issued in 1944; how many of those were printed; and for comparison, the corresponding figures for 1943.

Mr. Osbert Peake (Financial Secretary to the Treasury), who had been asked to reply, said: The number of Statutory Rules & Orders issued in 1944 was 1,479 of which 1,074 were printed in the Statutory Rules & Orders series. The corresponding figures for 1943 were 1,792 and 1,380.

Railway Development in India

We have received from Mr. R. R. N. Mirza, General Manager, Mysore State Railway, India, a copy of the text of his address, delivered on March 21, 1944, to the second conference of the 91st District of Rotary International in Mysore. Under the title of "Railway Development," the author points out the importance of direct communications without breaks of gauge, such as India suffers from, especially in the south. In post-war planning he advocates an all-India as opposed to a provincial or State policy of railway construction, and, in particular, stresses the need for building a metre gauge line from Khandwa to Hingoli in order to complete this last remaining link, still missing, between the northern and southern metre gauge systems in the peninsula. It would be only 180 miles long, but it would make possible through running on this gauge from such places as Bhatinda in the Punjab, Hyderabad in Sind, the Kathiawar ports, Cawnpore and Lucknow in the United Provinces, and the many junctions in Bihar, Northern and Eastern Bengal and in Assam, to Hyderabad (Deccan), Bangalore, Mysore, and the South Indian metre gauge system. Incidentally, a further 112-mile link would, he explains, give a much more direct route to connect with the latter, if constructed between Chamrajnagar and Podanur. With a similar object in view, Mr. Mirza also suggests that the Guntakal-Bangalore line should be converted from metre to broad gauge to improve broad gauge communications in Southern India.

He also calls attention to the hydro-electric plant under construction at the Gersoppa Falls in Mysore territory, and recommends that current should be taken from it for the electrification of railways and industries in South India, where, due to the distance from coalfields, coal is very expensive. The address is illustrated with maps.

Permanent Way Institution, Annual Meeting

The sixty-first annual winter general meeting of the Permanent Way Institution was held at the Institution of Civil Engineers, London, S.W., on Saturday, January 20, with the President, Mr. V. A. M. Robertson, C.B.E., in the chair. Representatives from the majority of the provincial Sections as well as London, attended, including three Past-Presidents, Messrs. R. Carpmael, Arthur R. Cooper, and W. K. Wallace.

The year 1944 was a notable one in the annals of the Institution, being the year of the diamond jubilee. This event was celebrated in as fitting a manner as was possible in wartime conditions, and reports of the various special arrangements appeared in previous issues of *The Railway Gazette*.

The Secretary, Mr. H. Janes, gave a report of the progress of the Institution for the past year. The improved activity in Section gatherings mentioned at the last winter general meeting continues, and reference to the reports in the *Journal* indicates that interest in the Institution increases. Meetings of the Bombay & Western India and South India Sections take place at regular intervals, and 47 members have been elected to those Sections in 1944.

The enrolment of additional members continues at a high level; 551 were elected in 1944. From home railways the numbers were: L.M.S.R., 210; Southern, 96; G.W.R., 84; L.N.E.R., 75; L.P.T.B., 11.

Three *Journals* have been issued during the year, and the December one contains a paper on "Prolonging the Life of Rails" contributed by a member in Argentina. Incidentally this paper is the first to be submitted to the Institution from South America.

The permanent way text book "British Railway Track" was published early in 1944. It received good reviews in the technical press, and in addition to the large number purchased by members, applications for the book have been received from many parts of the world.

The Council has decided to re-commence the examinations on permanent way work, and members and associate members will be invited to sit for the examination which will be held during May next.

Mr. F. Lawson (Hon. Treasurer) submitted a report which showed that the Institution's finances were in a sound state; the total investments have reached £2,559.

Mr. W. K. Wallace then moved the re-election of the President, remarking that for a number of reasons it would be wise to re-elect Mr. Robertson, who had several matters in hand for the improvement in the general organisation of the Institution, and it would be as well to let him deal with these items during his term of office. In seconding the proposal, Mr. Arthur R. Cooper said he had worked with Mr. Robertson for many years and the Institution was indebted for what he had done during the past two years. Although a very busy man, Mr. Robertson had made time to look after the Institution's interests, and his visits to many Sections had been much appreciated by the members. On the proposal being put to the meeting it was carried with acclamation.

Mr. Robertson said it was with great pleasure and pride he accepted office for another year. The Institution was unique in its origin and there was a feeling of friendliness among them regardless of status. The affairs of the Institution were in the hands of the Council to the members of which he was indebted for their attendance and attendance. Then they had a Secretary and Treasurer who devoted the whole of their space time to the Institution's work. As to Mr. Wallace's remarks concerning ideas for organisation and development, the Institution was growing and they must give attention to the question of benefits to the members. In accepting the Presidency for the third year, it was his ambition to see that the Institution continued to progress.

Vice-Presidents were then elected as follow:—*England*, Mr. B. Lloyd Davies, J.P.; *Scotland*, Mr. W. Paterson; *Wales*, Mr. T. Davies; *Ireland*, Mr. G. J. Murphy; *India*, Mr. W. R. Maunder, J.P.; *Sudan*, Mr. C. Mackinnon. The Secretary, Mr. H. Janes, the Treasurer, Mr. F. Lawson, and Asst. Treasurer, Mr. E. Bywater, were re-elected.

Mr. Arthur Dean, M.Sc., M.Inst.C.E., Maintenance Engineer, Southern Railway, then gave a talk on "Production of Ballast on the Southern Railway." Mr. Dean dealt with the quarrying of stone ballast at Meldon in Devonshire, and slides and film illustrated the various operations necessary from the blasting of the rock to the despatch of the ballast in hopper wagon trains to all parts of the Southern Railway. At the conclusion the President thanked Mr. Dean for his interesting remarks, and added that perhaps one day it would be possible to mechanise all the operations so ably explained by the speaker.

NEW 4-8-4 LOCOMOTIVES FOR THE SOUTH AUSTRALIAN RAILWAYS—

(*Concluded from page* 87)

Dynamometer-car tests have been conducted over various sections of track, on different grades, and at speeds to establish the maximum capacity of the locomotive, with reference to boiler evaporation, tractive effort, and horse-power. The maximum test speed was 70 m.p.h. with a load of 500 tons, and the maximum grade was 1 in 45 with 10-chain uncompensated curves, around which the maximum speed was 25 m.p.h. To enable the maximum horse-power at 70 m.p.h. to be developed, the train resistance was increased by applying the brakes on the test train from a special control valve fitted on the dynamometer car. This enabled the maximum load hauled to be increased from 500 tons to an equivalent maximum of 675 tons.

The tractive effort curves derived from this test showed that the locomotive was capable of sustaining a higher tractive effort at speed than is normally obtained with cylinders of this volume; the maximum of 2,600 h.p. developed at 70 m.p.h. is considered very satisfactory for an engine of this size.

Various other efficiency tests were conducted at the same time with water and fuel consumptions as against total work done in millions of foot-pounds, and have shown savings in both fuel and water in comparison with other modern locomotives on the South Australian Railways, indicating high boiler and mechanical efficiencies for the new engines; in fact the performance of the 520 class, both as to haulage and economy in fuel and water, has made it the most efficient locomotive in service on that system.

Notes and News

Entre Rios Railways Co. Ltd.—The board has decided to pay on January 31 the interest for the six months ended May 31, 1933, on the 5 per cent. debentures, together with 5 per cent. per annum interest thereon, amounting in total to £3 19s. 2d. per cent., less tax.

The Canadian Car & Foundry Company.—For the year to September 30, 1944, the net profit available for dividends is reported as $1,130,306, which compares with $832,241 for the previous year. Earnings on the common stock are $1.52 per share, against 68 cents for the previous year,

Bolivar Railway Company.—A petition has been presented to the High Court of Justice for the confirmation of the reduction of the capital of the company from £1,300,000 to £775,000. The petition is to be heard before Mr. Justice Vaisey at the Royal Courts of Justice on January 29.

Great Western Railway Company.—On Monday, January 29, balances will be struck in respect of the consolidated guaranteed stock, consolidated preference stock, redeemable preference stock, and consolidated ordinary stock of the Great Western Railway Company in connection with dividend payments for the half-year to December 31, 1944.

Midland Bank Limited.—The directors report a net profit for the year 1944 of £2,038,274, which compares with £1,984,397 for the previous year, and with £682,830 brought forward gives a total available of £2,721,104, compared with £2,645,520. The dividend for the year is again 16 per cent., and reserve fund receives £700,000 (against £500,000); £100,000 (against £250,000) is placed in reserve for future contingencies. The balance carried forward is £708,414. The reserve fund now stands at £14,110,609.

Packing and Labelling of Australian Export Goods.—The Australian Minister for War Organisation of Industry announced recently that, because of the prospects of an early partial revival of Australian export trade, particularly with the Netherlands East Indies, merchants could now return to pre-war standards of packaging and labelling of export goods. An Order had been issued removing packages, containers, and labels of those goods from wartime restrictions. The Government realised that the high standards of packaging and labelling were of prime importance in overseas sales of Australian products.

Associated Bus Cos. Ltd.—A general meeting of the above company will be held at 17, Albion Street, Hanley, Stoke-on-Trent, at 11 a.m. on February 8, to receive the account of the Liquidator, showing how the winding-up of the company has been conducted and its property disposed of, to hear any explanation which may be furnished by the Liquidator, and to determine by extraordinary resolution, the manner in which the books, accounts and documents of the company and of the Liquidator shall be disposed of. The undertaking of Associated Bus Cos. Ltd. recently was acquired by the Potteries Motor Traction Co. Ltd. (see our June 9, 1944, issue).

Railway Public Relations in U.S.A.—Seventeen supervisors of the New York, New Haven & Hartford Railroad are being instructed four days a week in public relations. The training course includes lectures on goodwill, employer-employee relations, customer relations, and the employee's job in relation to the industry, his company, and the public. The men attending the course are mostly train and station service supervisors and stationmasters. Similar sessions are to be held for New Haven employees throughout the system. Other employees who are to receive instruction are station agents, booking office clerks, telephone operators, ticket collectors, and others whose duties bring them into contact with the public.

International Railways of Central America.—Notice has been given that the first lien and refunding mortgage 6½ per cent. gold bonds, due February 1, 1947, will be redeemed on February 1, 1945. Arrangements have been made so that owners of bonds held in Great Britain may present their bonds for collection to J. Henry Schroder & Company of London.

Institution of Civil Engineers and Air Transport.—In view of the importance which civil air transport may be expected to assume after the war, the Council of the Institution of Civil Engineers has decided to form a sixth engineering division, to be known as the Air Transport Division, to deal with such aspects of air transport as airports (land and sea), airfields, operational buildings and facilities, hangars, and signalling and other appliances in connection with safety in flying. Until such time as a fully-constituted Divisional Board has been elected, Mr. M. G. J. McHaffie has been appointed Chairman of a provisional board.

Text-Books for Institute of Transport Examinations.—The shortage of many of the text-books required for the Institute of Transport examinations is causing serious difficulties for many graduates and students, and the Institute states that it would welcome information concerning any copies of text-books used for the Institute examinations and not now required by their owners. Anyone who is willing to present or sell such books is asked to advise the Secretary of the Institute at 15, Savoy Street, London, W.C.2 (only details of books available should be sent in the first instance; the books should not be sent at present).

I.C.I. (Alkali) Limited.—At an extraordinary general meeting of the above company held at Black Fan Road, Welwyn Garden City, Hertfordshire, on December 30, 1944, the following special resolution was passed: "That with a view to the assignment and transfer of the whole of the undertaking, assets and liabilities of the company to Imperial Chemical Industries Limited at the close of business on December 31, 1944, the company be wound up voluntarily, and that James Keith Batty and David Drummond, both of I.C.I. (Alkali) Limited, Winnington, Northwich, Cheshire, be and are hereby appointed Liquidators for the purposes of such winding-up."

Heenan & Froude Limited.—The ordinary general meeting of Heenan & Froude Limited was held on December 21 at Worcester. Mr. Alan P. Good, Chairman of the company, presided, and the following is an extract from his review circulated with the report:—

During the year under review a change has taken place in the constitution of our subsidiary Caprotti Valve Gears Limited and its subsidiary, Associated Locomotive Equipment Limited. Both these undertakings have been engaged in the supply of valve gears for locomotive and marine engines, and it was considered by the directors of those companies that a merger of interests would make for greater efficiency and success. Your directors welcomed the proposal, and were able to negotiate the purchase of the holding of Caprotti Valve Gears Limited, in Associated Locomotive Equipment Limited. This subsidiary now controls the whole of the trading and patent rights in valve gears, and it is expected that the change will prove of distinct benefit in the future

British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices Jan. 23, 1945	Prices Rise/Fall
G.W.R.				
Cons. Ord.	62¾	55	58¾	+ 1¼
5% Con. Pref.	122½	114¾	120½	—
5% Red. Pref. (1950)	110½	104	105	—
5% Rt. Charge	135½	128	134½	+ 1
5% Cons. Guar.	134⅞	125	133½	—
4% Deb.	118¾	112¾	116½	—
4½% Deb.	118½	114	118½	—
4½% Deb.	124¼	119½	122½	—
5% Deb.	137	129½	136½	+ 2
2½% Deb.	77	73½	74½	—
L.M.S.R.				
Ord.	34¾	27⅞	31	— 1½
4% Pref. (1923)	64½	55¼	62	— 2½
4% Pref.	81	72½	79½	— ½
5% Red. Pref. (1955)	105⅞	102	104	—
4% Guar.	107½	99½	105½	—
4% Deb.	111½	104	108	—
5% Red. Deb. (1952)	111	108	108½	—
L.N.E.R.				
5% Pref. Ord.	10½	7 7/16	8¼	— ¼
Def. Ord.	5 5/16	3¼	4	—
4% First Pref.	63¼	55¼	59½	— 2
4% Second Pref.	35¾	28½	31	— 1½
5% Red. Pref. (1955)	102½	97¾	101½	—
4% First Guar.	105½	96¾	103 xd	— 1
4% Second Guar.	95½	88½	95 xd	— 1
3% Deb.	88¾	80¾	86	—
4% Deb.	110¾	103½	107½	—
5% Red. Deb. (1947)	105¾	101½	102½	—
4½% Sinking Fund Red. Deb.	107	104½	104½	—
SOUTHERN				
Pref. Ord.	80½	71⅞	78	— 1½
Def. Ord.	26¾	23	25½	— 1
5% Pref.	122	113½	119½	—
5% Red. Pref. (1964)	117½	112½	115½	—
5% Guar. Pref. (1957)	134	125½	133½	—
5% Red. Guar. Pref. (1957)	115¾	112½	115½	—
4% Deb.	118	110	115½	—
5% Deb.	135½	127	133	—
4% Red. Deb. (1962-67)	111½	107½	108½	—
4% Red. Deb. (1970-80)	112	108¾	109½	—
FORTH BRIDGE				
4% Deb.	107	103	105	—
4% Guar.	106½	102	105	—
L.P.T.B.				
4½% "A"	125	119	122½	+ 1
5% "A"	133½	128	132½	—
3% Guar. (1967-72)	99½	98	99	—
5% "B"	124½	118 7/16	123½	+ 1
"C"	72¼	64½	69	—
MERSEY				
Ord.	35¾	03	36	—
3% Perp. Pref.	72	66	70	—
4% Perp. Deb.	105	103	107	—
3% Perp. Deb.	85½	79½	84	—
IRELAND*				
BELFAST & C.D.				
Ord.	9	6	8	—
G. NORTHERN				
Ord.	33¾	19	31½	+ 1
Pref.	49	37	48¾	+ ¼
Guar.	70	57 7/16	70	—
Deb.	90½	81½	90¾	— ¼
IRISH TRANSPORT				
Common	—	—	68	—
3% Deb.	—	—	98 7/16	—

*Latest available quotation

development of that business. The investment of the company is included in the balance sheet at the nominal figure of £25 only, so that any expansion of the operations of the subsidiary will enhance materially the company's interests.

London Transport Salvage.—About 700 tons of waste paper, including 406 tons of used tickets, were salvaged by the London Passenger Transport Board during 1944.

L.N.E.R. Loudspeaker Experiment.—At Leicester Central Station a loudspeaker telephone has been installed whereby the booking-office clerk may request the station staff to hold up the departure of a train for a passenger who arrives at the booking office as the train is due out.

Belfast Railway Disaster.—The inquiry directed by the Northern Ireland Ministry of Commerce to be held into the cause of the railway disaster near Belfast on January 10, when 19 persons were killed and over 40 injured, will open in Belfast on Monday, January 29, before the Ministry's Railways Inspector, Mr. R. D. Duncan.

Jonas Woodhead & Sons, Ltd.—Captain Allan G. Kyle, Chairman of Jonas Woodhead & Sons Ltd., at the recent general meeting, said that the period under review had provided an output greater than anything achieved in the long history of the company. The fabrication and tempering of steel called for heat treatment in high temperatures in a plant which had been run continuously during day and night without the normal periods of overhaul. Wear and tear had been exceptionally severe and considerable expenditure by way of overhauls would have to be made at the first opportunity. Substantial capital expenditure also would have to be incurred on new equipment by way of furnaces, machine tools, and so forth, and it was hoped that the prospective return of at least 10 per cent. of the excess profits tax would swell the company's funds for this purpose. Trading profit over the last five years had been £511,000, of which £447,100—approximately 87 per cent.—had gone in taxation and contingencies. This profit had been earned, not by high selling prices, but by an abnormal and considerable output obtained by driving the plant beyond its normal capacity. This tax rebate was rightly and properly the property of the company, and should be made available towards the cost of replacing war-worn equipment.

French Train Accident.—A train arriving at St. Valery-en-Caux, near Dieppe, on January 18, is reported by the Paris radio to have crashed into the buffers with serious results. The death roll is stated to have reached 150, and the injured to number some 200 of whom 80 are in a serious condition. The station itself sustained heavy damage.

East Kent Road Car Co. Ltd.—This subsidiary of the Southern Railway Company and of B.E.T. Omnibus Services Limited reports, for the year to September 30, 1944, Traffic receipts and other revenue amounting to £779,804 (£766,825). After providing for operating, maintenance, and administrative expenses £439,541 (£394,870). Road Acts duties, taxes, etc. £208,991 (£241,817), depreciation and renewals £60,000 (same), and other items, and transferring £10,000 (same) to general reserve, there remains a profit on working of £50,804 (£51,094) to which has to be added £25,681 brought forward. Dividend on the ordinary shares is 8 per cent. (same) and the balance forward is £27,485.

Baldwins Limited and Richard Thomas & Co. Ltd.—As a result of the fusion of the undertakings of Baldwins Limited and Richard Thomas & Co. Ltd., the latter will take over the obligations and benefits of all contracts and engagements of Baldwins Limited relating to the acquired businesses and assets as from January 1, 1945. Debts due to Baldwins Limited, to and including December 31, 1944, should be remitted to 6, Broadway, S.W.1, made payable to the company under its altered name, Baldwins (Holdings) Limited, and amounts owing by Baldwins Limited will be similarly discharged. All transactions in respect of the transferred business taking place on and after January 1 of this year will be for the account of Richard Thomas & Co. Ltd., which in future is to be known as Richard Thomas & Baldwins Limited. Until further notice, inquiries and orders should be addressed to Richard Thomas & Baldwins Limited at the respective branch addresses as now known.

L.M.S.R. Acts, 1944.—The Royal Assent was given on December 21, 1944, to the London Midland & Scottish Railway Act, 1944, and to the London Midland & Scottish Railway (Canals) Act, 1944.

Assam Railways & Trading Co. Ltd.—Shareholders of Assam Railways & Trading Co. Ltd. at extraordinary general meetings on January 23, passed resolutions authorising the directors to sell the railway to the Government of India. A report of the proceedings will be given in next week's issue.

National Road Transport Employers' Federation.—At an extraordinary general meeting held on December 13, 1944, the following special resolution was passed: "That the company be wound up voluntarily and that Mr. F. Winn, of Carter, Son & White, 58, Victoria Street, London, S.W.1, be appointed Liquidator for the purposes of such winding-up. That if upon the winding-up of the company there remains, after satisfaction of its debts and liabilities, any property whatever, the same shall be transferred to the Road Haulage Association Limited by Guarantee, being an institution having objects similar to the objects of the company and which prohibit the distribution of its income and property among its respective members to an extent at least as great as is imposed on the company by virtue of the memorandum of association of the company."

Glyn, Mills & Co.—The capital of this old-established private banking house incorporating Child & Co. and Holt & Co. was acquired in the summer of 1939 by the Royal Bank of Scotland. In the 121st statement of assets and liabilities as at December 31, 1944, the general position is shown as one of strong liquidity. Total assets are given as £68,471,877, as against £61,315,697 at the end of 1943. In the present assets are included: £7,027,244 (£5,536,864) in coin, bank notes, and balance at Bank of England; £1,820,471 (£2,687,102) balances with, and cheques in course of collection on, other banks in the United Kingdom; £10,543,700 (£8,325,700) money at call and at short notice; (£1,647,224 (£1,122,066) bills discounted; £8,500,000 (£6,500,000) Treasury deposit receipts; and £21,508,150 (£20,544,358) investments, including £21,073,082 (£20,114,071) in British Government securities. These items together represent £51,046,789, or 81·6 per cent. of the current, deposit, and other accounts of £62,557,161, which include provision for contingencies. The issued capital remains at £1,060,000 and the reserve fund at £850,000.

L.M.S.R. Staff Canteen & Dining Club at Inverness

The canteen was opened recently by Mr. C. Morrison, Assistant District Goods and Passenger Manager, Inverness, who is shown third from left. On his right is Mr. Marshall, Assistant District Locomotive Superintendent, who presided at the opening ceremony

Forthcoming Events

January 31 (*Wed.*).—The Institute of Welding. A general meeting will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W.1. 6 p.m. "Welding in Higher Technical Education," by Professor H. Wright Baker, D.Sc., M.I.Mech.E., M.I.Aut.E., and Mr. H. Martin.

February 3 (*Sat.*).—The Permanent Way Institution, Onward Hall, Deansgate, Manchester. 3 p.m. Lecture, "Derailments," by Mr. S. N. Wilde of Bolton.

Railway Stock Market

Stock markets have shown a reaction in industrial shares, contrasting with continued firmness in British Funds, and have been generally easier and only moderately active. The excellent war news had the effect of drawing more attention to the uncertainties and difficulties that will have to be faced by industry during the eventual return to peacetime working. Industrial shares had been a rising market in recent weeks, and this has been followed by profit-taking, although selling was not heavy. The reaction was attributed mainly to falling-off in demand. Although on a high-yield basis and with the dividend announcements due shortly, home railway junior stocks were not immune from the reactionary trend. In contrast with industrial shares, they have never come into demand on hopeful views of the post-war outlook. Indeed, the market tendency has been to emphasise the adverse factors in the outlook; sentiment is no doubt influenced in a large measure by the many occasions in the past when the reasonable claims of the railways and their stockholders have been disappointed. It should not, of course, be overlooked that, whereas many industrial companies will experience difficulties in the period of transition from war to peace working, railway stockholders can be regarded as virtually guaranteed dividends at around current rates until at least one year, and probably two years, after the end of the war. It is recognised that the outlook will turn in a large measure on the attitude of the Government to transport, which may be determined by the result of the next General Election. The market expects that the annual meetings of the main-line companies will dwell more fully with the future and the position of the railways as to the problems looming ahead.

Whereas junior stocks moved back sharply, prior charges, and also senior preference stocks, have been generally quite well maintained, investment demand continuing in view of the apparently attractive yield when compared with the return on other groups of securities of a similar status. Among preference and guaranteed issues, L.M.S.R. 4 per cent. guaranteed still yields over 3¾ per cent., L.N.E.R. first guaranteed 3⅞ per cent. and the second guaranteed nearly 4¼ per cent. The return on L.M.S.R. senior preference is over 5 per cent., L.N.E.R. first preference yielding fully 6½ per cent., and Southern preferred more than 6⅜ per cent.

Argentine rails tended to improve, but later reacted despite the assumption that when the war is over the Argentine and other South American republics may enjoy added prosperity because of demand for their products for the rehabilitation of Europe. French railway bonds showed further gains. Canadian Pacifics reacted, partly in common with dollar stocks generally; sentiment was also affected by the recent trend in traffics. Still under the influence of hopes aroused by the Indian Government offer, Assam Railways & Trading issues showed further gains; the "A" stock was 132½, compared with 125 a week ago, and the "B" also higher at 74½ before the meeting called to accept the offer.

A Great Western ordinary was 58¾, compared with 60 a week ago, with the 5 per cent. preference fractionally higher at 120½ and the 4 per cent. debentures unchanged at 116½. L.M.S.R. ordinary reacted from 32⅛ to 30¾, and the senior preference eased from 80¾ to 79½, and the 1923 preference from 64½ to 62½. L.N.E.R. first and second guaranteed were firm at 103xd and 95xd respectively, but the first preference moved lower at 59¾, compared with 61¾, with the second preference 31½, compared with 32¾. Southern deferred reacted from 26⅛ to 25¾, and the preferred from 79 to 78. London Transport "C" was maintained at 69½.

Elsewhere, among Argentine rails, B.A. Gt. Southern 4 per cent. debentures rallied slightly to 60 and the ordinary stock to 11¾, but lost earlier gains later. In other directions, San Paulo strengthened to 59, and United of Havana 1906 debentures to 27. Canadian Pacifics declined on balance from 15½ to 14⅝.

FOREIGN RAILWAYS INVESTMENT TRUST LIMITED.—The report for the year to October 31, 1944, shows revenue of £10,778 (£11,784) to which has to be added £48,937 brought forward, making £59,715. Deducting £1,324 for rent, salaries, etc., £5,256 for interest on bank loan, and £3,601 for income tax deducted from dividends and interest received leaves £49,535, which is carried forward. Investments at cost or under appear in the balance sheet at £2,627,030. The directors had not made a valuation of investments at the date of the accounts, but there is a heavy depreciation.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1942/3	No. of Weeks	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1944	Prices: Lowest 1944	Prices: January 23, 1945	Prices: Yield % (See Note)
South & Central America	Antofagasta (Chili) & Bolivia	834	14.1.45	£ 31,580	– £ 600	2	£ 58,950	£ 62,950	– £ 4,000	Ord. Stk.	13½	9½	10¼	Nil
	Argentine North Eastern ...	753	13.1.45	22,526	+ 6,873	28	555,140	451,913	+ 103.227	"	6½	4½	6½	Nil
	Bolivar	174	Dec., 1944	5.945	+ 1,169	52	63,997	62,732	+ 1,265	6 p.c. Deb.	18½	7½	7½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	19-7/16	15	18	Nil
	Buenos Ayres & Pacific ...	2,773	13.1.45	148.800	+ 16.134	28	3,784.866	3,095.333	+ 689.533	Ord. Stk.	7 1/16	3½	5¼	Nil
	Buenos Ayres Great Southern	5.080	13.1.45	255.800	+ 12,133	28	5.689.533	5.261.200	+ 428.333	Ord. Stk.	14½	9½	11¾	Nil
	Buenos Ayres Western ...	1,924	13.1.45	78 866	+ 6,866	28	2,084.533	1,667.933	+ 416.600	"	13½	9½	10½	Nil
	Central Argentine	3,700	13.1.45	207,626	+ 39,693	28	5,325,776	4,558,626	+ 767,150	"	10½	6⅝	8¼	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4¾	3	5	Nil
	Cent. Uruguay of M. Video	972	13.1.45	40.053	+ 3,749	28	919,183	955.726	– 36,543	Ord. Stk.	5½	4	4½	Nil
	Costa Rica	262	Nov., 1944	13.310	– 6,583	21	111.223	114.386	– 3,163	Stk.	17½	14¼	16	Nil
	Dorada	70	Nov., 1944	29.500	+ 4.500	47	294.943	243.607	+ 51.336	1 Mt. Deb.	101	101	98½	£6 1
	Entre Rios	808	13.1.45	30.160	+ 9,394	28	734,666	629,146	+ 105.520	Ord. Stk.	6½	4½	4½	Nil
	Great Western of Brazil ...	1,030	13.1.45	28.600	+ 5,000	2	51,100	47.100	+ 4.000	Ord. Sh.	38/–	23/3	30/-	Nil
	International of Cl. Amer. ...	794	Nov., 1944	$546,534	– $18,900	47	$6,827,493	$6,589,280	+ $238.213	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	1¾	½	1	Nil
	La Guaira & Caracas... ...	22½	Dec., 1944	6.522	– 463	52	90,117	97,885	– 7,768	5 p.c. Deb.	88	79	79½	£6 5
	Leopoldina	1,918	13.1.45	42.839	– 3,455	2	82,726	77,155	+ 5,571	Ord. Stk.	5¾	4½	4½	Nil
	Mexican	483	14.1.45	ps. 476,400	+ ps.126,200	1	ps. 946,000	ps. 720.900	+ ps. 225,100	Ord. Stk.	¾	½	¾	Nil
	Midland Uruguay	319	Nov., 1944	16.470	– 2,113	21	83.491	84.450	– 959	—	—	—	—	—
	Nitrate	382	15.1.45	6.644	+ 1,206	2	6,644	5.438	+ 1,206	Ord. Sh.	75/10	65/10	70/–	£3 1
	Paraguay Central	274	12.1.45	£57,822	+ £9.901	28	£1,698,368	£1,511,252	+ £187.116	Pr. Li. Stk.	79½	68	77	£7 16
	Peruvian Corporation ...	1,059	Dec., 1944	133.173	+ 17,641	26	769,298	637,187	+ 132,111	Pref.	9	10	8	Nil
	Salvador	100	Nov., 1944	c87,000	– c 7,000	21	c 410,000	c 429,000	– c 19,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	57½	46	58½	£3 17
	Taltal	156	Dec., 1944	2,390	– 5,335	26	15.165	35,225	– 20,060	Ord. Sh.	21/3	13/9	12/6	Nil
	United of Havana	1,301	13.1.45	55,369	— 236	28	1,345,537	1,323,105	+ 22,432	Ord. Stk.	4	2½	3	Nil
	Uruguay Northern	73	Nov., 1944	1,608	+ 34	21	7,291	7,130	+ 161	—	—	—	—	—
Canada	* Canadian Pacific	17,028	14.1.45	1,034,000	– 58,000	2	1,994,600	1,880,600	– 114,000	Ord. Stk.	17¼	13 1/16	4¼	6½
India†	Barsi Light	202	Dec., 1944	17,475	– 570	39	203,107	191,332	+ 11,775	Ord. Stk.	129½	97½	127½	£3 1
Various	Egyptian Delta	607	20.12.44	23,057	+ 2,113	36	504,757	417,328	+ 87,429	Prf. Sh.	7 1/16	5½	7	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	63½	58	60	Nil
	Midland of W. Australia ...	277	Nov., 1944	18.036	– 12.078	21	101,006	165,804	– 64,798	Inc. Deb.	101½	99½	98½	£4 1
	Nigerian	1,900	30.9.44	286,839	– 39,236	4	—	—	—	—	—	—	—	—
	South Africa	13,301	2.12.44	1,042,870	+ 106,952	35	31,745,139	29,237,519	+ 2,507,620	—	—	—	—	—
	Victoria	4,774	April, 1944	1,188,999	– 212,162	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of ⅛. Argentine traffics are given in sterling calculated @ 15 pesos to the £

† Receipts are calculated @ 1s. 6d. to the rupee